



FRIDAY, APRIL 29, 1881.

Dills' Steam-Shovel and Derrick-Car.

The engravings herewith represent respectively a side view and plan of an iron derrick-car and steam-shovel, of which the manufacturers have given us the following description:

Body of Car.—The car is constructed principally of iron;

the fire-box. The fire-box is flanged out at bottom, to be riveted to outside shell, as is also the fire-door flanged in a similar manner.

The outside shell of boiler is made of the best $\frac{1}{8}$ in. flange iron, while the heads, fire-box and taper combustion chamber are made of $\frac{1}{4}$ in. steel.

The tubes are 150 in number, 4 ft. long each, and 2 in. in diameter. The boiler, when finished, is tested with a pressure of 150 lbs. to the square inch. It is also furnished with all the necessary steam-fitting, such as steam gauge, gauge cocks, spring safety valve, glass water-gauge, blow-off cocks, etc. The boiler is fed by an injector, which also forces the water into the jacks at the front end of the car for steadyng it when in operation. Three of these jacks

Spool and Gearing.—The spool and spool gearing are supported on a heavy cast-iron frame, which is bolted rigidly to the car's iron sills. A pinion on the engine shaft of 10 in. diameter and 5 in. face, running into a gear of 48 in. diameter and 5 in. face down the spool shaft. The clutch gearing for clutching and unclutching the spool is simply a small steam cylinder of $3\frac{1}{2}$ in. diameter and $2\frac{1}{2}$ in. stroke. The piston of this cylinder is made fast by a cotter to a sliding clutch sleeve, to which the projections that clutch into the recesses of the large spool are made fast. By giving steam at the one end or other of the cylinder, clutching or unclutching is accomplished. This is very effective, and prevents the possibility of the clutch ever slipping.

Crane.—The crane is constructed of 6 in. iron channel

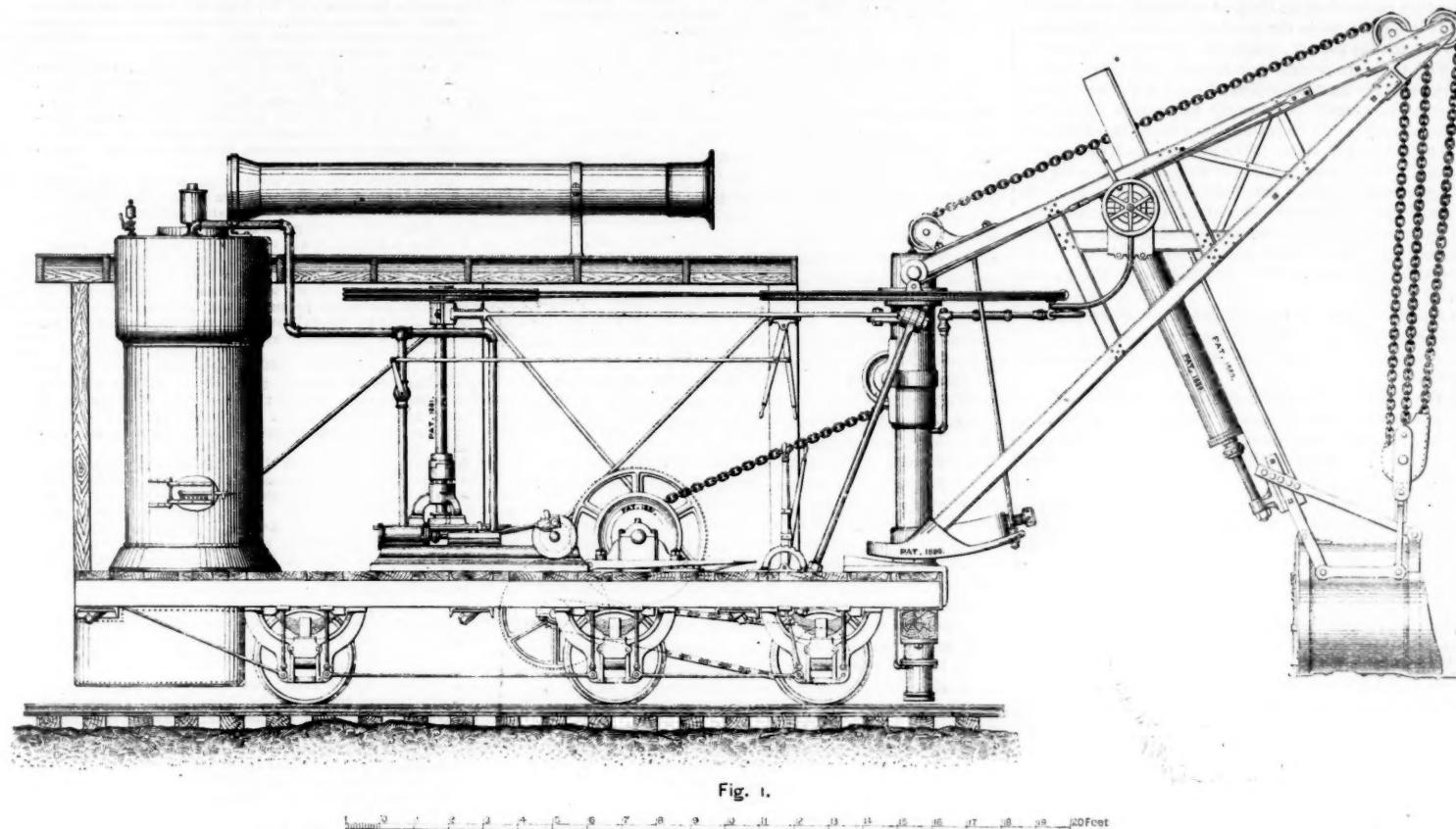


Fig. 1.

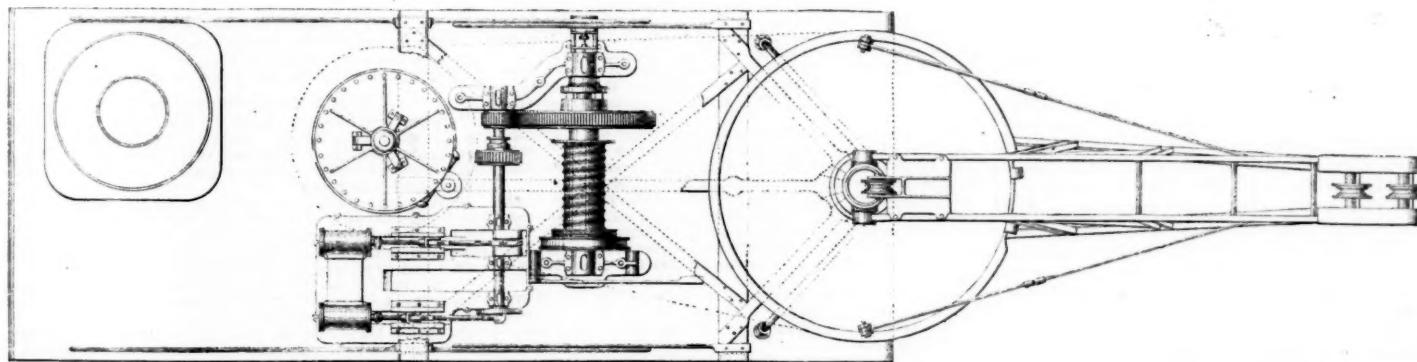


Fig. 2.

DILL'S STEAM SHOVEL AND DERRICK CAR.

Manufactured by the Industrial Works, Bay City, Mich.

the six outside sills of body of car are made of 9 in. channel bar, weighing 18 lbs. per foot, and the two centre sills are I-beams, 9 in. deep, and weighing 28 lbs. per foot. The frame of car is 25 ft. long, by 10 ft. wide. The sills of the car are held together by nine channel bars, 15 in. wide and 10 ft. long, 40 lbs. to the foot. These bars are so placed across the car that the two front ones, with suitable forged plates underneath, form the support for the large casting in which the crane post rests. The three channel bars crossing underneath the car are so placed that they form a recess for the level washers, to which the main braces of the crane and crane post are made fast. The floor of the car is covered with 3 in. thick oak plant bolted to the iron sills.

Running Gearing.—The body of the car is mounted on six wheels, 33 in. in diameter, broad tread, with three axles, 6 in. in diameter, and with bearings, $5\frac{1}{4}$ in. in diameter, and 9 in. long. To the body of the car the jaws for the axle boxes are rigidly fastened.

The centre axle is so turned that it has sufficient play or lateral motion in the boxes to pass around the shortest curve. The jaws are braced substantially to the sides of the car as well as lengthwise.

Boiler.—The dimensions of the boiler are: Shell, 48 in. diameter, for height of 6 ft., at which point it is enlarged to a diameter of 54 in. for a distance of 3 ft. at top of boiler, to make more steam room. The fire-box is 40 in. in diameter, by 30 in. high, having water space $3\frac{1}{2}$ in. around

are furnished when specially ordered. They can be operated as well with steam as with water. By the use of these jacks at least an hour and a half is saved in a day's work over the time required in using the old style of screw jack.

Driving Engines.—The engine for hoisting the dipper and moving the car along the track has double cylinders, each $7\frac{1}{2}$ in. diameter, by 10 in. stroke, and bolted to a heavy cast-iron bed. The crank-shaft is of forged iron, the piston and valve rods of steel, and all thoroughly constructed. The engine is supplied with a link motion for reversing in moving the car. This is seldom required when digging or in ordinary operation.

Moving Gearing.—The gearing for moving the car consists of a spur pinion on the engine shaft of 16 in. diameter and 4 in. face, which works into a large spur pinion of 38 in. diameter under the body of the car. On the 3 $\frac{1}{2}$ in. shaft which supports this gear is a small chain wheel of 10 in. diameter, and this connects with a chain wheel on the forward axle of the car 20 in. in diameter by means of a wrought-iron chain made especially for the purpose. By this means the car can be propelled from eight to ten miles per hour.

Swinging Engine.—For swinging the crane a separate cylinder, constructed partially on the rotary principle, is used. The connection with the crane is made by means of a $\frac{1}{2}$ in. steel-wire rope passing around two large rope sheaves, the one on the cylinder axle being 5 ft. in diameter and the one on crane post 9 ft. in diameter.

bars. It is 18 ft. long from centre of crane post to centre of chain sleeve at outer end of crane, and when elevated in position for work is 19 ft. high above track. There is a cast-iron shoe at the foot of the crane-post provided with a screw, by means of which the outer end of the crane can be lowered to 14 ft. from the track to allow of passage under bridges when being transported.

Dipper Cylinder.—The cylinder on the crane for operating the dipper is of $10\frac{1}{2}$ in. bore, and 8 ft. stroke. It is trunnioned at top and takes its steam through these trunnions.

The piston rod is of steel, and is fastened to the dipper handle by means of a cast-iron bracket.

The dipper handle moves on the back of the cylinder in suitable grooves as the piston is pushed in or out of cylinder by the steam. The valve gearing for this cylinder is operated by hand, so that steam can be given at either end of piston, as may be required.

These machines are manufactured by the Industrial Works at Bay City, Mich. The representatives of this establishment are McMann & Russell, No. 58 Gold street, New York.

—Mr. Amos Whittemore, a director of the Wilton and the Peterboro & Hillsboro companies, died at his residence in Laconia, N. H., April 18, aged 77 years.

—Mr. Alexander J. O'Grady, Claim Agent of the Chicago, Burlington & Quincy, has resigned that office and will go to Brazil to take a position on a railroad there.

Contributions.

Chilian Railroads and Railroad Projects.

We have permission to publish the following extracts from a letter written by the Chilian Minister at Washington, Señor M. Martinez:

"Chili has occupied, to secure the war indemnity, a small part of the Peruvian territory, in which are certain railroads not belonging to the government. One is the road which unites the port of Arica with the city of Tacna. I think it quite possible that the government, or some company, will prolong this line towards the interior of Bolivia, an undertaking which would net a yearly profit of 10 per cent.

"Another railroad unites the port of Pisagua with several nitrate establishments in the interior, and a more important line runs from the port of Iquique to other nitrate works.

"All of these are private enterprises. The Pisagua and Iquique roads are for the purpose of carrying nitrate to the coast, and only incidentally carry passengers, which is a subordinate traffic. It is certain that these two lines will soon be united, as but about 25 or 30 miles need be built to do it, and if the companies do not undertake the work the Chilian government will, as the line has strategic value. It is extremely probable that Chili will also push the extension of the Iquique Railroad into the interior of the south of Bolivia toward the cities of Lucre and Potosi. Such an extension would bring the commerce of Bolivia to the Pacific Coast. * * *

"In the old territory of Chili there are many and important railroads. The city lines of Santiago and Valparaiso, which are worked by means of animals, are considerable enterprises. * * *

"In the province of Atacama is the railroad of Copiapo, which unites the port of Caldera with the city of Copiapo and with important copper and silver mines. In this province also are the lines of Tuquios, of Cerro-Blanco, and of Corraliz. * * *

"In the province of Coquimbo, lying south of Atacama, is an important railroad called the Coquimbo Railroad; another line in the same province is the Tongoy Railroad. Both Coquimbo and Tongoy are ports. In the centre of the republic is the great central government railroad. This is a very important road, which unites Santiago with Valparaiso, and which has several important branches.

"The longest line is the 'Southern Railroad,' also belonging to the government, which with its branches measures some 1,000 miles, if I am not mistaken (1,600 kilometers). This line extends from Santiago as far as Angol on the frontier of Arauco. The government has resolved to prolong this line as far as Valdivia, and studies are now making for a plan of the route. There are several other lines of little importance—tramways on which the vehicles are hauled by animals.

"The principal railroad contractors in Chili have been North Americans. One was Mr. Henry Meigs, now dead. The other is Mr. John Slater, who lives in Concepcion.

"There are two enterprises now open which have not been carried through, as those holding the concessions cannot command the money necessary. In England it was required that the Chilian government should guarantee a minimum interest, which that government has not done, and will not do. Both projects seem to me excellent, and I believe that neither would return a profit of less than 8 per cent. or perhaps 10 per cent. a year. The first is for a railroad between Lota (?) (a great coal region) and Concepcion. This road would place coal in reach of the southern and central railroads, and of all the consumers of the chief cities. The other project is for a line from the port of Taltal or Blanca Encalada to the Cordilleras, for working the great nitrate beds which exist in that region, and which now produce largely, but would produce more were there easy communication with the coast. Probably the best means of getting information about these projects is to address Mr. John Slater, Concepcion, Chili, South America. Mr. Slater is in communication with all the business men, and knows well those who hold these concessions."

Connecting Curves.

TO THE EDITOR OF THE RAILROAD GAZETTE:

We have again to thank Mr. Wellington for another valuable contribution to the art of railroad location in giving us an easy method of laying out transition curves.

He has well shown that it is the maximum grade combined with the maximum curve that more than anything else determines the operating economy of any railroad.

After the weight of the trains has been fixed, mainly by these elements, then it is of further importance to provide for the easy and smooth running of these trains over these grades and curves. The management provide most excellent rolling stock and steel rails laid on the older roads on good ballast. It remains for the engineer to ease off the abrupt changes of grade by vertical curves, and the change from tangent to curves by transition curves gradually increasing in degree from a straight line to the maximum degree of curvature used.

The object of this article is to give a still easier method than Mr. Wellington's, adapted to the greater number of cases that arise in actual practice, and which may be more readily applied in our present practice of locating regular curves, or to easing off curves on railroads already built.

Probably more than 90 per cent. of the curves used on the railroads of this country are less than five-degree curves. The usual practice in building is to lay the ties on a subgrade without bedding them, and to fill in between the ties

and to raise the track from the sides or by ballast brought by train. No allowance being made for the additional width required on one side to raise the banks to elevate the outer rails on curves, this practice leaves the higher or outside edge of the banks narrower than the lower or inside, while the contrary should be the case. Take a three-degree curve elevated one-half inch to the degree, or the outer rail 0.12 foot higher: this with an 8-foot tie raises the end of the tie 0.2, or the edge of the bank 0.35, where the banks are of the usual width of 14 feet, and reduces the width on that side a half-foot. This is objectionable, and often where the banks are built narrow has to be remedied by material brought by train at a considerable additional expense.

Mr. Wellington suggests that with easy curves, easy transition curves be used, and with sharper ones shorter transition curves. This will often be necessary in the case of reverse curves with short connecting tangents.

An examination of his tables I., II., III., show that for curves under five degrees, throwing the curve in parallel about five-tenths will give a transition curve at the ends about 100 ft. in length extending 50 ft. each side of the tangent point, the degree of which will vary, however, with the degree of the main curve. Now let the location be made in the usual way with regular curves, but when we come to set the stakes for the track centres, set them beginning 50 ft. on the curve a half-foot inside of the true line all around the curve. Set a stake opposite the tangent point 0.25 inside, and a stake on the tangent 50 ft. from the tangent point on the true line. This will give us transition curve varying in degree with the main curve. It does not matter what the exact degree may be. Keep the records and re-run the line if necessary by the centre line of the true curve, noting that the track is laid on curves one-half foot inside.

In exceptional cases of curves sharper than five degrees, Mr. Wellington's tables and formulae may be used. In these cases it will well pay to take the additional trouble to secure the greater ease of running.

The difference in length of the track and the true centre of location where the track is thrown in will be small, and may be easily calculated. It amounts to but one-half inch for each 100 ft. of a five degree curve, and a proportional amount for curves of less degree; and but little attention need be paid to it except in throwing in curves on track already laid, where a rail or two might have to be cut in each curve to make up for the difference.

By throwing in the track centres on curves one-half foot in this simple way we will, where roads are located and built in the usual manner, lay the track so that the bank on the outside of the curve will be a trifle the wider, and at the same time secure an easy passage on to the curve by a short parabolic curve gradually increasing in degree, both of which are points of considerable importance. S. N. K.

Train Accidents in March.

The following accidents are included in our record for the month of March:

REAR COLLISIONS.

On the morning of the 1st a freight train on the Pennsylvania Railroad ran into a preceding freight, which had stopped to take water at Kittanning Point, Pa. The engine was damaged, several cars wrecked and the engineer hurt.

On the afternoon of the 2d a freight train on the New York, Lake Erie & Western road ran into the rear of a switching train in East Buffalo, N. Y., damaging several cars.

On the afternoon of the 3d a freight train on the Utah Central road was making a flying switch at Kays Creek, Utah, when the detached cars were not stopped in time and ran into the forward ones, wrecking the tender.

On the afternoon of the 3d a freight train on the New York Central & Hudson River road ran into the rear of a preceding freight, which had been stopped near Little Falls, N. Y., on account of a broken rail, wrecking several cars. The first train sent back a flag, but the second was too close to stop in time.

On the night of the 8d a freight train on the Fitchburg road broke in two near Erving, Mass., and the rear cars ran into the forward ones, wrecking a number of them and injuring a brakeman.

Very early on the morning of the 5th a freight train on the Pittsburgh, Cincinnati & St. Louis road ran into some cars left on the track in Pittsburgh, wrecking four of them.

On the night of the 5th a freight train on the Concord road ran over a misplaced switch in Concord, N. H., and into the car-house, wrecking several passenger cars standing there.

On the morning of the 7th a freight train on the Western & Atlantic road ran into a preceding freight near Dalton, Ga., wrecking several cars.

On the morning of the 8th a freight train on the Western & Atlantic road ran into the rear of a preceding freight near McIvors, Ga. The engine and eight cars were badly broken and the engine upset down in bank. The fireman was badly injured, and a man who stood by the track was caught under the engine and fatally scalded.

On the morning of the 12th an Atlanta & West Point freight train ran into some cars which had broken from a Central Railroad freight on the track used by both roads near Atlanta, Ga., wrecking the caboose and damaging the engine.

Very early on the morning of the 13th a freight train on the Pittsburgh, Cincinnati and St. Louis road ran into a switching train in Pittsburgh, Pa., throwing three cars off a bridge, killing two men and injuring another.

On the 15th a freight train on the Wabash, St. Louis & Pacific road ran over a misplaced switch and into some cars on a siding in the yard at Decatur, Ill., wrecking two cars.

On the night of the 16th an oil train on the Philadelphia & Reading road broke in two near Ringgold, Pa., and the rear section ran into the forward one, wrecking several cars. An oil tank exploded and 18 cars were burned up.

On the morning of the 17th a freight train on the New York Central & Hudson River road broke in two near Peekskill, N. Y. A following freight picked up the detached cars and was pushing them ahead when it ran into the first train, which had stopped, wrecking four cars.

On the night of the 18th a stock train on the Missouri, Kansas & Texas road ran over a misplaced switch and into another stock train standing on a siding at Parsons, Kan., wrecking the engine and several cars, killing the engineer and a brakeman.

Early on the morning of the 19th a freight train on the

Western & Atlantic road ran into a preceding freight near Atlanta, Ga., wrecking two cars.

On the evening of the 19th a Canada Southern freight train backed into the rear of a New York, Lake Erie & Western freight in Black Rock, N. Y., wrecking several cars.

On the morning of the 21st a passenger train on the St. Paul, Minneapolis & Manitoba road ran into the rear of a freight near Rothsay, Minn., wrecking several cars. The caboose caught fire and was burned. Two men were killed and five hurt.

On the afternoon of the 21st a freight train on the Intercolonial road ran into the rear of a preceding freight, which had stopped at Truro, N. S., wrecking several cars.

On the night of the 21st a freight train on the New York Central & Hudson River road broke in two at Whisky Hill, N. Y., and the rear section ran into the forward one, wrecking a car.

Very early on the morning of the 24th a freight train on the Cincinnati, Indianapolis, St. Louis & Chicago road broke in two near Greensburg, Ind., and the rear cars ran into the forward ones, wrecking one car, killing two tramps who were stealing a ride and injuring two others.

On the morning of the 25th a freight train on the New York, Pennsylvania & Ohio road ran into the rear of a preceding freight near Saegertown, Pa., wrecking several cars.

On the morning of the 26th a freight train on the Nashville, Chattanooga & St. Louis road ran into the rear of a preceding freight at Cumberland Mountain, Tenn., wrecking several cars.

On the afternoon of the 28th a passenger train on the Wabash, St. Louis & Pacific road ran into some freight cars which had been run out on the main track at Ferris, Ill., wrecking them and injuring the engineer.

On the 31st a freight train on the Chicago, Rock Island & Pacific road ran into the rear of a construction train near Walnut, Ia., wrecking nearly the whole train. Both engineers and three laborers were fatally injured, and 20 other laborers less severely hurt. The accident is said to have been caused by the failure of an operator to notify the freight that the work train was on the road.

BUTTING COLLISIONS.

On the afternoon of the 3rd there was a butting collision between a freight and a repair train on the Chesapeake & Ohio road, near Caldwell, Va. Both engines and several cars were wrecked; both engineers, both firemen and another man killed.

On the afternoon of the 5th there was a butting collision between a north-bound passenger train and a south-bound extra with empty passenger cars on the Baltimore & Potowmack road, near Severn, Md. Both engines and two cars were wrecked, one passenger and a baggeman killed, 10 trainmen and six passengers hurt. The engineer of the extra had orders to wait at Severn, but disobeyed them. Ex-President Hayes and family were on the north-bound train, but were unhurt.

On the 9th there was a butting collision between two freight trains on the Cleveland, Columbus, Cincinnati & Indianapolis road near Crestline, O. Both engines and several cars were wrecked, a conductor and engineer hurt, and the road blocked four hours.

On the evening of the 17th there was a butting collision between two freight trains on the Cairo & St. Louis road near Rosborough, Ill. Both engines and several cars were wrecked.

On the night of the 18th there was a butting collision between a passenger and a freight train on the International & Great Northern road near Palestine, Tex., by which both engines and several cars were wrecked, a trainman killed and 11 passengers hurt.

On the evening of the 29th there was a butting collision between two freight trains on the Chesapeake & Ohio road, near Hawk's Nest, W. Va., by which both engines were damaged.

CROSSING COLLISION.

On the morning of the 10th a Central Vermont freight train ran into a St. Johnsbury & Lake Champlain freight at the crossing in Swanton, Vt., wrecking two cars.

DERAILMENTS, BROKEN RAIL.

Very early on the morning of the 1st a passenger train on the Hannibal & St. Joseph road struck a broken rail near Bevier, Mo., and the engine and three cars went down a bank and were badly broken, injuring the engineer, fireman and 12 passengers.

On the night of the 1st a passenger train on the Keokuk & Des Moines Division of the Chicago, Rock Island & Pacific road struck a broken rail near Prairie City, Ia., and two cars were thrown from the track and upset, injuring the conductor and 10 passengers slightly.

On the night of the 2d a passenger train on the Chicago, Burlington & Quincy road was thrown from the track near West Lyons, Ill., by a broken rail.

On the 4th three cars of a passenger train on the Dunkirk, Allegheny Valley & Pittsburgh road were thrown from the track near Cassadaga, N. Y., by a broken rail.

On the morning of the 8th a freight train on the Baltimore & Ohio road struck a broken rail near Milford, Ind., and the engine and 10 cars were thrown from the track, injuring the fireman and a brakeman.

On the afternoon of the 10th five cars of a freight train on the Baltimore & Ohio road were thrown from the track near Fredericktown, O., by a broken rail.

Near midnight on the 10th a passenger train on the Louisville & Nashville road struck a broken rail near Athens, Ala., and two cars were thrown from the track and upset. Two trainmen and five passengers were hurt.

On the morning of the 11th a freight train on the Western & Atlantic road was thrown from the track near Cartersville, Ga., by a broken rail.

On the morning of the 15th a passenger train on the Milwaukee, Lake Shore & Western road struck a broken rail near Kaukauna, Wis. The whole train was thrown from the track and several cars went down a bank.

On the afternoon of the 31st a freight train on the Hanover Junction, Hanover & Gettysburg road struck a broken rail near Glenville, Md., and several cars were thrown from the track. One man was hurt.

DERAILMENT, BROKEN WHEEL.

On the morning of the 23d the engine of a passenger train on the Boston & Albany road was thrown from the track by a broken wheel near Washington, Mass. The engine ran over against a freight train on the other track and was badly damaged.

DERAILMENTS, BROKEN AXLE.

On the afternoon of the 4th the engine of a freight train on the Louisville & Nashville road broke a driving axle in Nashville, Tenn., and was thrown from the track.

On the afternoon of the 6th five cars of a freight train on the New York, New Haven & Hartford road were thrown from the track near Portchester, N. Y., by a broken axle.

On the morning of the 8th several cars of a freight train on the Seaboard & Roanoke road were thrown from the track near Franklin, Va., by a broken axle.

On the evening of the 11th several cars of a freight train

on the New York & New England road were thrown from the track at Waterford, R. I., by a broken axle.

On the 21st a car of a passenger train on the Albany & Susquehanna road was thrown from the track near Milford, N. Y., by a broken axle.

On the 25th seven cars of a freight train on the European & North American road were thrown from the track near Mattawamkeag, Me., by a broken axle.

On the morning of the 30th 19 cars of a freight train on the Lake Erie & Western road were thrown from the track by a broken axle on a bridge near Dayton, Ind., wrecking several cars, damaging the bridge and injuring a brakeman.

DERAILMENT, BROKEN TRUCK.

On the morning of the 17th a passenger train on the New Brunswick & Canada road was thrown from the track near Watt Junction, N. B., by the breaking of a truck.

DERAILMENTS, BROKEN BRIDGE.

On the morning of the 1st a wrecking train on the Hannibal & St. Joseph road, going to the relief of a wrecked passenger train, broke through a bridge over Brush Creek, near Brookville, Mo., and three cars went down into the creek in a bad wreck, killing seven persons and injuring 21 others. It is said that a truck broke under the wrecking car, throwing it over against the bridge truss and knocking it down.

On the night of the 3d a snow-plow on the Wisconsin Central road broke through a small bridge near Sherman, Wis., and went down. A laborer was hurt.

On the morning of the 16th a freight train on the Houston & Texas Central road broke through a bridge near Ennis, Tex., and 14 cars went down and were piled up in a bad wreck, injuring three trainmen.

DERAILMENT, SPREADING OF RAILS.

On the morning of the 2d two cars of a passenger train on the St. Johnsbury & Lake Champlain road were thrown from the track near Greensboro Bend, Vt., by the spreading of the rails. Two passengers were hurt.

On the afternoon of the 15th a freight train on the Ohio Central was thrown from the track near Fostoria, O., by the spreading of the rails, and the engine and six cars were piled up together. The engineer, fireman and a brakeman were badly hurt.

DERAILMENTS, SNOW.

On the afternoon of the 3d a passenger train on the Peoria, Pekin & Jacksonville road ran off the track near Seward, Ill., in a snow-bank.

On the 10th a repair train on the Milwaukee, Lake Shore & Western road was thrown from the track in a snow-bank, near Grimm, Wis., and one man was hurt.

On the morning of the 21st three engines and a snow-plow on the Chicago, Burlington & Quincy road ran off the track in a drift near Bristol, Ill., and were wrecked.

DERAILMENT, WASH-OUT.

On the afternoon of the 9th a passenger train on the Baltimore & Potomac road ran into a wash-out near Winans, Md., and the engine and two cars were piled up in the gap, killing the fireman.

DERAILMENTS, ACCIDENTAL OBSTRUCTION.

On the afternoon of the 9th a freight train on the Baltimore & Ohio road ran into a stone which had fallen on the track near Ellicott City, Md., throwing the engine and five cars from the track.

On the evening of the 19th the engine of a freight train on the Danbury & Norwalk road was thrown from the track by a rock which had fallen on the road near Branchville, Conn., in a side-hill cut.

Very early on the morning of the 20th a freight train on the New York Central & Hudson River road was thrown from the track near Sputten Duyvil, N. Y., by a brake beam which dropped off on the track, and several cars were piled up in a bad wreck.

DERAILMENTS, CATTLE.

Very early on the morning of the 9th a passenger train on the Lake Erie & Western road ran over a cow near Lafayette, Ind., and the engine was upset down a bank, the baggage car following it. The fireman was fatally, the engineer less severely, scalded.

On the morning of the 23d a passenger train on the Baltimore & Ohio road ran over a horse at Glover's Gap, W. Va., and the engine and two cars went off the track and down a bank, killing the engineer and fireman, and injuring three others.

DERAILMENT, OPEN DRAW.

On the morning of the 26th a passenger train on the Philadelphia, Wilmington & Baltimore road ran through the open draw of the bridge over the Brandywine at Wilmington, Del. No cars went off, but the engine jumped upon a canal-boat which was passing through and sank it, injuring the captain.

DERAILMENTS, MISPLACED SWITCH.

Very early on the morning of the 1st a passenger train on the Wabash, St. Louis & Pacific road was thrown from the track in Decatur, Ill., by a misplaced switch. The fireman was hurt.

On the 1st the engine of a freight train on the Chicago & Northwestern road was thrown from the track near Batavia, Ill., by a misplaced switch.

On the morning of the 3d a freight train on the Central Railroad of New Jersey, was thrown from the track at Westfield, N. J., by a misplaced switch and the engine upset, killing the engineer, injuring the fireman and conductor.

On the afternoon of the 12th a passenger train on the New York Central & Hudson River road was thrown from the track at Fort Porter, N. Y., by a misplaced switch.

On the afternoon of the 17th the engine and six cars of a freight train on the New York Central & Hudson River road were thrown from the track at Byron, N. Y., by a misplaced switch. Two cars were wrecked and the track blocked three hours.

Very early on the morning of the 21st a freight train on the New York Central & Hudson River road was thrown from the track near Hyde Park, N. Y., by a misplaced switch, and 13 cars were piled up in a bad wreck, blocking both tracks eight hours.

On the morning of the 28th the engine and two cars of a local passenger train on the Philadelphia & Reading road were thrown from the track at Hunter's Breaker, Pa., by a misplaced switch.

DERAILMENTS, RAIL REMOVED.

On the morning of the 3d a freight train on the New York & New England road was thrown from the track near Hop River, Conn., where some trackmen had removed a rail but neglected to put out a proper signal.

On the morning of the 29th a freight train on the Illinois

Central road was thrown from the track near Heyworth, Ill., where some trackmen had taken out a rail and failed to put out signals. The engine upset, injuring the engineer.

MALICIOUS DERAILMENT.

On the night of the 28th the engine and two cars of a passenger train on the North Carolina road were thrown from the track by a switch at Rose Turnout, N. C., which had been purposely misplaced. The engineer was hurt.

UNEXPLAINED DERAILMENTS.

On the morning of the 1st a car of a freight train on the Delaware, Lackawanna & Western road ran off the track in Newark, N. J., delaying trains for a time.

On the morning of the 4th several cars of a freight train on the Buffalo & Southwestern road ran off the track near Dayton, N. Y., blocking the road several hours.

On the night of the 6th two cars of a freight train on the New York, Lake Erie & Western road ran off the track near Pond Eddy, Pa., and went down a bank.

On the 7th it is reported that no less than three freight trains ran off the track between Monroe and Charlotte, N. C., on the Carolina Central road.

On the morning of the 8th several cars of a freight train on the Boston & Lowell road ran off the track near Somerville, Mass., blocking the road an hour.

On the night of the 8th several cars of a freight train on the New York, Lake Erie & Western road ran off the track in Middletown, N. Y.

On the morning of the 9th four cars of a freight train on the Troy & Greenfield road ran off the track near North Adams, Mass., and were slightly damaged.

On the morning of the 9th a freight train on the Midland Railroad, of New Jersey, ran off the track near Ogdensburg, N. J., blocking the road four hours.

On the 9th three cars of a freight train on the New York Central & Hudson River road ran off the track near Syracuse, N. Y., and were wrecked.

On the 9th a passenger train on the North Carolina road ran off the track near Charlotte, N. C., doing some damage.

On the morning of the 11th a passenger car on the Denver & Rio Grande road ran off the track near Thompson, Col., and one car rolled down a bank 25 feet into the Platte River. Three passengers were seriously hurt and several bruised.

On the morning of the 11th a construction train on the Dallas & Wichita road ran off the track near Dallas, Tex., and several cars went down a bank, injuring two men fatally and three less severely.

On the morning of the 12th three cars of a passenger train on the Atchison, Topeka & Santa Fe Road ran off the track near La Junta, Col., and were badly damaged, injuring 13 passengers slightly.

On the morning of the 12th a coal train on the Philadelphia & Reading Road ran off the track near Barnesville, Pa., and 12 cars were piled up in a bad wreck.

On the 12th the engine of a freight train on the South-Eastern Railway, of Canada, ran off the track at Richford, Vt., doing some damage.

On the morning of the 14th a repair train on the South Carolina road ran off the track near Blackville, S. C., wrecking four cars and injuring nine laborers.

On the morning of the 17th the engine and two cars of a freight on the New York, Lake Erie & Western road ran off the track at Turner's, N. Y., blocking the road three hours.

On the morning of the 19th a freight train on the New York Central & Hudson River road ran off the track near Highlands, N. Y., wrecking six cars.

On the afternoon of the 19th a freight train on the New York Central & Hudson River road ran off the track at Hastings, N. Y., wrecking eight cars.

On the evening of the 19th a freight train on the New London Northern road ran off the track near North Monson, Mass., and 12 cars were piled up in a bad wreck, blocking the road all night.

Early on the morning of the 21st 10 cars of a freight train on the Canada Southern road ran off the track near Canfield, Ont., blocking the road five hours.

On the 22d a passenger train on the Brunswick & Albany road ran off the track on the trestle at Little River, Ga., damaging several cars and the trestle.

On the 22d a yard engine on the Chicago & Northwestern road ran off the track at Lake Angeline, Mich., injuring the engineer and fireman slightly.

On the evening of the 23d a passenger train on the Lake Shore & Michigan Southern road ran off the track at Nottingham, O., while running at a very high speed. The tender was thrown over the engine and the mail, baggage and express cars piled up in a bad wreck, killing the engineer and fireman and injuring the express messenger.

On the evening of the 23d the engine and two cars of a construction train ran off the track at Deerton, Mich., on the Detroit, Mackinac & Marquette road.

On the morning of the 25th a passenger train on the Indianapolis & St. Louis road ran off the track near Mattoon, Ill., and the engine upset.

On the morning of the 25th the engine of a freight train on the New York, Pennsylvania & Ohio road ran off the track near Bear Lake, Pa., doing some damage.

On the night of the 28th a car in a freight train on the Boston & New York Air Line jumped the track at a bridge near Rock Falls, Conn., and 14 others followed it off the rails, seven going over the bridge into the river below.

On the morning of the 29th the engine of a passenger train on the Central Railroad, of New Jersey, ran off the track in Newark, N. J., causing some delay to trains.

On the morning of the 30th a passenger train on the Pittsburgh & Lake Erie road ran off the track on the Corks Run trestle in Pittsburgh, Pa., but did not go off the bridge.

On the afternoon of the 30th seven cars of a freight train on the Cincinnati, Indianapolis, St. Louis & Chicago road ran off the track near Utterbein, Ind., and were wrecked.

On the morning of the 31st a freight train on the Chicago, Milwaukee & St. Paul road ran off the track near Charles City, Ia., wrecking several cars.

OTHER ACCIDENTS.

On the morning of the 21st the engine of a passenger train on the Central Railroad of New Jersey broke a parallel rod near Cranford, N. J., and was badly damaged.

This is a total of 113 accidents, whereby 38 persons were killed and 177 injured. Sixteen accidents caused the death of one or more persons; 25 caused injury but not death, leaving 72, or 63.7 per cent. of the whole number, in which no injury to persons is recorded.

As compared with March, 1880, there was an increase of 48 accidents, of 29 in the number killed and of 144 in that injured.

These accidents may be classed as to their number and causes as follows:

COLLISIONS :	
Rear collisions.....	25
Butting collisions.....	6
Crossing collision.....	1

Brought forward.....	32
DERAILMENTS:	
Broken rail.....	10
Broken wheel.....	1
Broken axle.....	7
Broken truck.....	1
Broken bridge.....	3
Spreading of rails.....	2
Snow.....	3
Wash-out.....	1
Accidental obstruction.....	3
Cattle on track.....	2
Open draw.....	1
Misplaced switch.....	9
Rail removed for repairs.....	2
Purposely misplaced switch.....	1
Unexplained.....	34
Broken connecting rod.....	1
Total.....	113

Six collisions were caused by trains breaking in two, three by misplaced switches, two by failure to obey orders and one by a flying switch. An unusual number both of collisions and derailments are unexplained; probably many of the latter were caused by snow, and some of the collisions may have been due to the confusion resulting from snow blockades.

There were 70 accidents in daylight; 34 at evening or night, and in nine cases the time is not definitely fixed.

There were 32 accidents traceable directly to defect or failure of road or equipment; four to the elements; four to unavoidable accidental obstructions; 38 to carelessness or defects of management; one was malicious, and 34 unexplained.

A division according to causes of accidents is as follows:

Accidents :	Collisions.	Derailments.	Other.	Total.
To passenger trains.....	1	30	1	32
To a pas. and a freight.....	4	4
To freight trains.....	27	50	..	77
Total.....	32	80	1	113
CASUALTIES :				
Killed by.....	22	63	..	83
Injured by.....	16	116	..	132
Total.....	38	177	..	215

March was, especially in the West, a very severe month, with much cold weather and frequent storms of snow in the West. The winter has lasted unusually late and Western roads have been blocked with snow to an extent unprecedented so late. Not many accidents are recorded as resulting directly from snow, partly, perhaps, because they are usually not severe, and are not reported; partly because they are so many in number that local papers get tired of recording them.

There were quite a number of broken rails and axles, but, singularly enough, only one broken wheel is in the record, in marked contrast to the preceding month.

The first quarter of the year contrasts with the first quarter of 1880 as follows:

	1881.	1880.
Acc. Killed. Injured.	Acc. Killed. Injured.	
January.....	223 30 182	92 11 50
February.....	149 27 253	64 16 49
March.....	113 38 177	63 9 33
Total.....	485 95 612	191 36 132

Not all the difference is due to the weather, but a large part of it is, and the figures show the marked contrast between a mild and a severe winter.

The weather was not the only point in the month's record deserving attention. There were 12 accidents—nine derailments and three collisions—due to misplaced switches, over one-tenth of the whole number resulting from this form of carelessness. The one malicious derailment was also a misplaced switch. It is not out of place to call attention once more to the number of trains breaking in two, and also to the number of collisions obviously resulting from trains following too closely to be stopped in time in case of a mishap to the leading train.

For the year ending with March, the record is as follows:

Number of accidents.	Killed.	Injured.
April.....	71	45
May.....	46	30
June.....	56	77
July.....	78	21
August.....	112	49
September.....	124	15
October.....	120	69
November.....	145	40
December.....	135	29
January.....	223	30
February.....	149	27
March.....	113	38
Total.....	1,372	374
Total, same months, 1879-80.....	839	173
" 1878-79.....		

the near future of very serious difficulties between master and men, employer and employee, foreman and laborer, require that this matter be given immediate and careful consideration. Before going further, let me say, first: Inferiority never superintends or directs superiority but for a very short time. The man of original and rational thought with the practical knowledge of the details of the matter in his hand stands always at the apex of the pyramid of power and prosperity. If the master had the confidence of every one of his men, strikes, lockouts, discontent, conciliation and arbitration between the employer and the employed would be unknown.

The difficulties which I fear must soon be met cannot, however, be bridged over upon personal relations alone. There are property and commercial laws which must be recognized, enacted and enforced. The recent strikes in private manufacturers and upon street railroads warn us to consider these laws, and that right speedily, for these occurrences are infectious and contagious, and travel as electricity in the air. The master is morally bound to promote the moral, social and intellectual status of the men and their families, and should recognize that the men are men.

It is also the duty of the masters and managers to allow the laborers to share in the prosperity of business as they should share in the depression of business. While the care of the intellectual and social condition and progress of the laborer is a mere matter of morals that cannot be connected with politics or with law, this is a matter that is so founded on commercial relations that any means necessary, even to the extent of revolution, to enforce the doctrine may be adopted. The making of laborers to share in the depression of business is a matter comparatively easy, and their right to share in the division of the profits ought to be recognized as well.

Upon the question of conciliation and arbitration: There is no doubt that the master and manager should frequently confer with those under them, clear down to the lowest order. But the discussion that is going on in England and to some extent in this country, between arbitration on the one hand and conciliation on the other, is a useless discussion. Take up arbitration itself, it is a *dernier resort*; it is neither a rule of action nor a perpetual remedy. If I am contending for what I think is right, and another is contending for what he thinks is right, and we come to a deadlock, then it

General Condition of Freight Cars Interchanged in Through Traffic.

At the regular monthly meeting of the Master Car-Builders' Association, held in New York April 21, the following letters from master car-builders on the above subject were read. They were all addressed to Mr. C. A. Smith, Secretary of the Association, who had solicited contributions from the writers on the subject of discussion at the meeting:

FROM MR. THOMAS AYLESBURY.

ST. JOSEPH, Mo., April 15, 1881.

DEAR SIR: Agreeable to your request I send you a few thoughts on the above subject.

First. As to age of the cars in service at present time. The percentage of old cars compared to what it was three or four years ago is low. At that time there had been and was for some years a very serious depression of business, and railroads had to curtail expenses; and as is generally the case the car department felt it more than any other branch of the service. Since that time business has revived, thousands of new cars have been added to the equipment of the several roads, and thousands of old cars have been rebuilt, bringing the average from poor or fair to good condition.

The present style of freight car is being greatly improved. A few years ago there was a great cry for a lighter car—one that would increase the paying weight and reduce the dead weight, the demand no doubt being brought on by the advocates of narrow-gauge railroads. In response to this demand there was a class of cars built for which I can find no better name than *cobble houses*, that amounted to so much kindling wood when by chance any of them got into a wreck, or at best a source of expense to the companies owning them to keep them in repair. Since that time "a change has come o'er the spirit of their dream" for the better, and stronger and heavier cars are being built—cars that do not break by fair usage, cars that instead of carrying 10 tons carry 20 tons. Another style of car that is going out of use is the combination car, a car which has been another endless source of expense to keep up, and one which has been very unsatisfactory to shippers of either stock or

which the freight was damaged. From those bills I learned that freight was damaged in cars belonging to different companies, but invariably the damage was caused by leaky roofs. I have no recollection of signing any bills of this character for the last two years. This fact convinces me that there has been an improvement in the condition of car roofs at least inside of the last two years. While perfection has not yet been attained, I have noticed a vast improvement in the drawing attachments that make it more safe for trammen and switchmen. The old and never-to-be-forgotten "man killer" has almost entirely disappeared. The draw-bars are almost universally of a uniform height, while many roads have adopted automatic couplings which almost entirely do away with the danger incident to making up a train. The automatic freight train brake is being experimented with to an extent far beyond the expectations of those who first suggested that such a thing might be invented, and the time is not far distant when a railroad company which has not got their freight cars equipped with an automatic freight-train brake will be regarded as a one-horse concern.

The Master Car-Builders' standard axle is being adopted by a number of roads, and when the car-builders can decide on a standard oil-box and journal-bearing, which they will no doubt do in the near future, it will be another step in the right direction.

The bodies of freight cars generally are in better condition than they were two years ago. There has been an unusual amount of work done in contract shops in the last year, and the railroad companies have been rebuilding and repairing their cars, beside buying large numbers of new cars, so that freight cars generally do not show the age that was observable previous to the last twelve months. The subject of wheels is a rather perplexing one, and although I know that I will meet with opposition, I will give it as my opinion that the rule governing the condition of wheels should be either entirely done away with or changed so that wheels as well as other parts of a car should be made good at the expense of the company in whose hands the car is when the wheels are worn out. If a wheel is found upon examination to be so near worn out that it will not make a trip or a round trip over the road to whom it is offered, let it be rejected. There is no class of bills with which I have so much trouble to intelligently certify to as those rendered against us for wheels. This, in my opinion, is really the true way to do business, putting as it does the wheels on the same basis as the rest of the car, and would undoubtedly save a great deal of trouble in the course of a year. Hoping you may have a profitable meeting, I am, sir, yours respectfully, J. P. COULTER,

Ohio & Mississippi Railway.

FROM MR. ROBERT MILLER.

DETROIT, Mich., April 14, 1881.

DEAR SIR: In response to your favor of the 2d inst., requesting an expression of opinion from me on the subject of "interchange cars," their condition, etc., this topic has been so often "cussed and discussed" that it is a hard matter to introduce any new feature. I will therefore give you briefly the experience of this road (Michigan Central) in handling foreign cars during the year 1880, which will serve to show the magnitude of the interest involved and the great necessity for any improvements that will tend to facilitate the proper conduct of this largely increasing business.

Statistical items relating to foreign cars on Michigan Central Railroad in 1880.

Total number of miles run by foreign freight cars.	61,458,277
Total number of foreign cars in use on Michigan Central.	58,092
Total cost of repairs on foreign cars in use on Michigan Central.	\$7,900.40
Equal to cost per mile run.	12 ¹ / ₂ cent.
Number of wheels removed from foreign freight cars.	1,440
Number of hook boxes on foreign freight cars.	22,546
Number of foreign cars broken up on Michigan Central.	7
Number of Michigan Central cars broken up on foreign roads.	30
Number of common grain doors used on the Michigan Central, 72,396, cost.	\$18,099.00
Number of links, 29,758; pins, 23,545; cost.	\$19,652.58

From these figures can be seen how large an expenditure is necessary to maintain foreign freight cars on roads forming part of the through lines, being about 23 per cent. of the total cost of car repairs on this road. If our cars are maintained by us in good condition and their mileage less (which is the case) on other roads, we have not sufficient to offset this large expense. In view of the loads now carried in merchandise cars, and the increasing interchange, it seems to me an imperative necessity to insist on the following requirements for all cars offered for through business in addition to present rules: *First*, all through cars must have Master Car-Builders' standard axle, with journal 3¹/₂ x 7 in; *second*, wheels must all be 33 in. diameter, standard gauge; *third*, loading capacity must in all cases be marked on both sides of car, together with the weight of car when built. If cars break down under the load designated, owners shall be held responsible for consequent repairs on such cars; *fourth*, all grain-carrying cars must be provided with permanent grain doors; *fifth*, every effort should be made to do away with wrought-iron draw-bars, and if possible establish a standard for a cast-iron one; *sixth*, the strength of links and pins should be increased to meet the additional loading; *seventh*, uniformity should be established in the use of lubricators on through cars; *eighth*, cars not owned by railroad companies should not have the benefit of interchange rules, but should be received and run at owner's risk, giving them ordinary care, and charging them with all repairs made, as it is not just that railroad companies should maintain such cars in good condition at their own expense, as is now done; *ninth*, a code of rules should be established governing the interchange of passenger equipment, which is not now subject to freight rules, and requires some modification therefrom; *tenth*, all roads damaging foreign cars should repair them promptly. If detained over ten days waiting such repairs, demurrage charges should be collected.

I think the foregoing will do for the present. In general, I would say that the condition of freight cars has been very sensibly improved during the past two years. The adoption of some such rulings as I have suggested will tend to make them still better.

We do not get sufficient service out of our cars; they will not average on roads generally over 1,000 miles per month for each car. This mileage should at least be trebled, and thus reduce the number of cars required to transact the same amount of business. Yours respectfully,

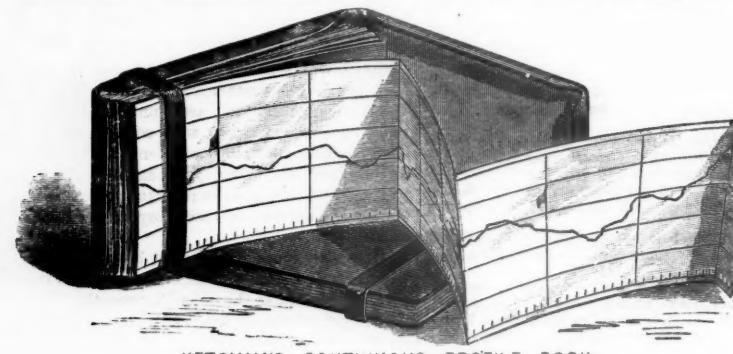
ROBT. MILLER.

Michigan Central Railroad.

FROM MR. JOHN ORTON.

ST. THOMAS, Ont., April 18, 1881.

DEAR SIR: In reply to your letter of the 2d inst. asking me to write a letter to be read at your meeting on the 21st inst., on the subject of "The Present General Condition of Freight Cars Employed in the Interchange Through Traffic," I fear that I can say very little on the subject, of a complimentary nature generally, although in some respects an apparent improvement is discernable by reason of a large number of new cars having recently been put into service, some of



KETCHAM'S CONTINUOUS PROFILE BOOK.

is proper that we should agree upon an arbitration. But to rely upon arbitration for the settlement of all difficulties between master and men is a piece of foolishness.

Of conciliation it may be said that many superintendents of roads call the heads of departments to their office once a month, to discuss the business of the road, to the profit of all that attend. To say that capital is conciliating labor by these conferences, or, on the other hand, that labor is conciliating capital, is not true. They are not conciliating each other. The object is to establish a régime by which the interests of both shall be consulted; but do not resort to thing which will encourage controversy between master and men.

Associations and combinations, if you please—though combination is a term which is obnoxious to me and to most people—should be encouraged when and where the association is for a proper purpose and is conducted in a proper manner, with proper modes of action. It would ill become me to say that no persons should associate themselves together. The master car-builders do; the managers do: the ticket agents do. Why is it not proper for the laborer and for the brakeman, if only the methods in carrying out the association as well as the manner and the matter of its organization be legal and conducive to the best interests of all concerned?

Such personal relations between the managers and the masters and the men must be established in advance, that in time of trouble each shall have confidence in the other and believe that each will duly recognize the rights and interests of the other. There must be a constant interchange of opinion between them. As a rule of action, the idea of conciliation is a dangerous idea. The railroad managers should encourage association and combination upon a proper basis and with proper methods, but as to associations which are actuated by the idea that by combining they can beat somebody by brute force, they should not be recognized in any other manner than as a man recognizes a highwayman who, in the dark, has got him by the throat.

With reference to the relations of the car-builders to each other, in which you are working at the question of standards, there are, in my opinion, two stumbling blocks in the way: the first is that you have not behind the power of the managers to put into force that which is your best judgment; and the second is that, while your personal relations to each other are perfectly harmonious, there still exists among you a very great diversity of opinion and a very small disposition of concession to the opinions of others.

Ketcham's Continuous Profile Book.

Nearly all railroad engineers have often had occasion to know the inconvenience of handling a profile of a railroad drawn on a long roll of paper. The continuous profile book represented by the engraving will therefore at once commend itself to them and will require no description. The manufacturers say of these books:

"They are printed upon tough, thin sheets of linen parchment paper, which will take color and stand erasures, and mounted upon a continuous piece of muslin, with close joints evenly matched to present a continuous profile of any desired length and bound in book form, with an index printed on the back of each fold, showing the station and section numbers, thus giving a ready reference to any part of the profile."

They are manufactured by Mr. Charles F. Ketcham, No. 29 Nassau street, New York, who may be addressed for further information.

FROM MR. J. P. COULTER.

AURORA, Ind., April 8, 1881.

DEAR SIR: Your favor of April 2 duly received and noted, stating that discussion at monthly meeting in April would be the present general condition of freight cars employed in the interchange through traffic. It is certainly a very interesting subject, and one in which every master car-builder is deeply interested, and one on which there could be a great deal said. But I suppose what you want is statements backed up by statistics or some proof, and not merely an assertion made that such and such is the case when there is no better authority than the word of the person making the assertion.

I am only prepared to make a statement without any figures to support it. I can say that my observation has been that the general condition of freight cars is far superior to what it was two or three years ago. There are cars belonging to a large number of different companies running over the Ohio & Mississippi road daily. From two to five years ago it was a very common thing to have bills sent for approval for damaged freight. These bills always give the number and initials of the car in

which are tolerably well built as compared with their predecessors; but the lack of uniformity, about which our members have been talking, and the press have been commenting on for years past, is as noticeable now as ever. The running and draft gearings in the cars of one builder do not correspond with similar parts in the cars of other builders, neither are they duplicates of old cars owned by the companies who are having the new cars built, and hence the diversity of patterns keeps on increasing instead of diminishing. This, to my mind, is the one great blunder that many companies are perpetuating, at a cost to themselves of thousands of dollars annually; and wherever the system of interchange of through cars is in operation, the evil is intensified in a ratio proportionate with their through business. It is not for me to say where the blame should rest for this creation of diversity of patterns, whether on the builders, or on the purchasers; but there is one thing certain in this connection, and that is, if some of the principal railroad companies would only give the matter due consideration, and come to a fair understanding with each other, so as to decide on fixed models and specifications for new cars, the builders would necessarily follow instructions, and in the course of a very short period a general style would be adopted; and then as old cars required repairs, alterations, or old to new patterns could be effected with but very little additional cost. With the body of a car differences in construction are of very little consequence, as in cases of repairs to wood work the material has almost invariably to be cut and shaped to suit; but in the trucks and draft attachments, which, from the very nature of their duties, are more or less constantly needing repairs of one kind or another, there should not be a tittle of difference in their make which would prevent similar parts of a standard character from being used as substitutes in cases of renewals.

The Master Car-Builders' standard axle is, I am glad to see, becoming a standard in reality, but the journal-box and bearing is as far from being a standard as ever, although one is supposed to exist, and, to the credit of a few roads, it is said, one does exist. To those few who have adopted the standards that have been approved of at our meetings, it is very discouraging to find so many who are not only not trying to work in these standards, but apparently are doing their best to oppose them by altering their leading features. Let us take a journal-box as an illustration. In the standard box for diamond-bar trucks, the centres of holes for the arch-bar bolts are 8 in. apart; but many of the new cars have them only 7 or $7\frac{1}{2}$ in. The height of box to pit between the bars is 9 $\frac{1}{2}$ in.; but many are only 8 or 8 $\frac{1}{2}$ in. The width inside in the clear where the bearing fits should be 4 $\frac{1}{2}$ in., but some are smaller and some larger; and then the shapes of the bearing and key are even more various, which utterly destroy any pretension to uniformity. The same incongruity exists in the draw-bar and brake attachments, the result of which necessitates keeping in stock an enormous quantity of material which, under even an appropriate system of uniformity, could be reduced to at least one-fourth what it is at present, making a reduction in the value of material generally kept in stock equal to at least 75 per cent. As an instance of the number of patterns that some roads have to keep to meet their requirements, due to the interchanging of cars, it is not a month since I was informed by the Master Car-Builders of one of our Western connecting roads, that he had 60 different patterns of journal-boxes, and was then having one or two more made to suit foreign-road cars. I have no doubt that other roads can confirm and supplement that assertion in the matter of other castings, and while the necessity for such a state of things exists, surely it cannot be said that "the present general condition of freight cars in the interchange through traffic" is by any means satisfactory.

There appears to me only one way of remedying the evil, and that is, as before suggested, for some of the principal roads to make a starting point, and by general agreement of their controlling managements determine on certain models and specifications for the various classes of cars, after which there should be no variation permitted that would in any way interfere with these standards, unless it could first be shown to be desirable in the interests of the roads concerned, and then the consent of subscribing parties should first be obtained.

This restriction will not necessarily prevent a good invention from being tried for test purposes, as on all roads there are local cars used on which so-called improvements could be tested, and if found worthy of adoption, as conducing either to economy or safety, any really good invention would, in all probability, be accepted as a standard. These remarks are respectfully submitted, not in any spirit of dictation, but in the interests of the Master Car-Builders' Association.

Believe me yours respectfully,

JOHN ORTON.

Canada Southern Railway.

After the reading of these letters by the Secretary

Mr. GAREY said that an inspector, under whose eye more cars pass than any other man in this country can see, informed him that fully 50 per cent. of all the cars cut out of trains were rejected for defects in the draw-bars. On the New York Central they had adopted the plan of having joint inspectors at all points of interchange where connecting lines would consent, and had found it very economical, both as to dispatch of business and saving in expenses. The plan was to select as inspector an experienced man who had not before been employed by either road and was as disinterested as possible. The inspector is paid jointly by the two companies interested, and is supposed to know or care for nothing except the actual condition of the cars he inspects, without reference to the ownership or the direction of the car. It is straightforward work in which an honest and capable man has no difficulty in giving satisfaction to both parties.

Mr. ADAMS thought that the system of joint inspectors must fail, because it would be impossible to get men who would be impartial; it was not in human nature.

Mr. GAREY said that, after a little experience, they had found the system work very smoothly, even at points where interchanges were made with competing and not always friendly roads. He had sometimes transferred his inspectors each week, putting them one week on the east-bound cars, and the next on west-bound cars. He had found that cars were carefully and well inspected, and had had no accidents due to careless inspection or passing cars in bad order. Some system of this kind was necessary unless the time and expense of transfers was to be largely increased. He believed that an inspector could do his work without partiality when he was honestly paid for it.

Mr. GAREY further called attention to the suggestion in one of the letters read, that wheels should be renewed at the expense of the company in whose hands the car was when the wheel was removed. That would be clearly unjust.

Mr. SMITH suggested that there should be a general understanding that all cars put in through freight lines should be in good condition at starting.

Mr. GAREY thought it generally agreed that all line cars should be in good condition.

Mr. SMITH thought that line cars usually required a great many repairs, and believed that most master car-builders would be astonished at seeing careful statistics of the repairs required yearly on line cars on a large road.

The discussion was then closed.

The Cause of Railroad Discriminations and the Remedy.

Under the title of "Thurber versus Fink," *The Nation* of April 21 publishes the following:

In response to the request of the Anti-Monopoly League we last week explained to some extent what we did not believe in as a solution of the railroad question. We do not believe in a law limiting profits. We do not believe in relying on public spirit as a substitute for profit in railroad management. What, then, do we believe in? That we propose now to explain.

The difficulty with the Anti-Monopoly League and the whole Granger school of agitators seems to be that they will not study out their subject. Approaching it with certain preconceived notions, they pick up a fact here and a fact there; from these facts they manufacture a list of abuses; to this list of abuses they proceed at once to apply their preconceived notion of a remedy. Passing by the questions of fictitious capital and excessive profits, in regard to the first of which their case is at best not proven, and in regard to the second of which they have no case—passing by these, the real allegation against the railroad companies relates to the systematic method which they pursue of discriminating as between man and man. Here the case of the League is in great degree made out for them. There is no question whatever that the railroad business of the country is to-day, as it always has been, based on a complicated system of special rates. One place enjoys preferences over others, one man or one firm over other men and other firms. That this system is good cannot for a moment be maintained. That it has led to abuses of the gravest description every one who knows anything of the railroads of the country, and does not belong to them, freely admits. That it is now with great rapidity concentrating all the large branches of business in the country at a few points, and in the control of not many men, is apparent. That some remedy for this condition of affairs should, if possible, be devised, and that speedily, no thoughtful man having any acquaintance with the subject is disposed for a moment to deny.

Here, then, is a confessed evil—an ill of the body politic, so to speak. A cure is to be sought. In what is it to be found? Of course, in order to discover the cure, the cause of the ill must first be clearly ascertained. It does not do to attribute it to human wickedness, the greed of gain, or the general prevalence of bad men in the world. This is a convenient and simple way of solving the question, but one which leads to results hardly satisfactory. A code of legislation built on it as a foundation will hardly prove efficacious. In the present case, also, the cause of the ill is not far to seek. In fact, it lies almost on the surface. Obviously enough, the root of railroad discrimination is in railroad competition. That competition is peculiar. Not only is it local, but necessarily there are very few parties to it. Generally there are but two. There are never more than five or six. Where it does exist, also, this competition is of the sharpest description conceivable. It is no child's play. A race of men are thus trained up to it, the one object of whose lives—whose very subsistence itself—depends on their getting for their employers "their share of the business," as it is termed. All the rest follows as a matter of course. The most astute and the least scrupulous of these agents go by promotion to the great centres of competition. There they have recourse to every device conceivable by human ingenuity to secure traffic. These devices all tend to one result—the concentration of business at the points of competition, and in the hands of a few men at these points. The man who has business to give can, through this system, command rates of carriage which enable him to defy competition on the part of any who cannot command equal rates. Cut-rates, draw-backs, rebates, time-contracts, every expedient is in turn resorted to, and they all result to the advantage of the competing point and the large concern. This is the discrimination complained of. To deny its existence mere folly; and neither Mr. Thurber nor Judge Black nor Secretary Windom can overstate the evils which now do result from it, or the yet greater evils, both economical and political, which, if it goes on, seem likely to result from it.

While not overstating this evil, however, they resolutely refuse, one and all, to recognize the cause of it. The railroad system was organized in this country in a full reliance on the natural laws of competition. We are the single nation which has accepted the logical result of this reliance in our general laws authorizing free railroad construction. Well, the railroads have moved in the line marked out for them by public opinion and public policy a great deal too strongly. That is what is the matter. Where they have to compete they compete too much, and, as a logical consequence, where they have not to compete they do not compete enough. The cause of the evil is found then, not in the badness of men, but in a radically mistaken railroad policy. The general laws of trade and competition, on which we have put our reliance, have worked, but not in the way we expected them to work, or that Mr. Thurber and Judge Black and Secretary Windom now think they ought to work. But what remedy do they propose? Their remedy is always a very simple one. Seeing as clearly as any one that unregulated local competition is the cause of the evil of which they complain, they propose more competition. In other words, they fall back helplessly, helplessly and angrily on their preconceived notions. From this point forward, therefore, they themselves become the one great obstacle in the way of every intelligent effort to solve the problem. They now have recourse to those stereotyped phrases in political economy which, with the unreflecting, put a stop to discussion. Competition, they keep reiterating, is the life of trade; combination is monopoly. Combination, therefore, must be prohibited by law, while competition—well, competition must be pieced out by law. There is not quite competition enough to go round, and what there is is too strong; so they seek by statute to prescribe a competition of their own, to be conducted on Christian principles, which shall be at once good, and gentlemanly, and high-toned, and plentiful—not this scant, cut-throat business. No one must compete secretly, or indulge in any ways that are dark; all must compete according to rule, and not too much. So laws are to be passed regulating the whole thing; more usage laws; laws making discriminations and draw-backs and rebates criminal offenses; laws threatening Mr. Vanderbilt with fines and his freight agents with imprisonment.

Just such laws as these the world has been making for several thousand years—laws in restraint of trade. During the last dozen years the legislatures of twenty states in this country have been busy making them as respects railroads. They have come to nothing yet. They never will come to anything. Such a law is the so-called Reagan Bill, annually before Congress, which Mr. Thurber and the Chamber of Commerce specially commend; a law which, if it were passed and rigidly complied with to the letter by the railroad companies, would paralyze the traffic of the country in a single week.

Such, as we understand it, is the method of dealing with this great evil advocated by the Anti-Monopoly League—a method worse than leaving the whole thing alone; a method condemned not only by reason, but, in the case of railroads,

by the experience of fifty years. How should it be dealt with? The true method of dealing with it, we think, is very plain. As the evil arises from unregulated local competition, the remedy is to be found in a regulated general competition. On that point we have not the slightest doubt that Mr. Fink is right. The first step toward a better condition of affairs will be found in the closer combination of the railroad companies, so that they can restrain their own agents. They must be allowed, therefore, and even encouraged, to organize themselves together, and their organization must be made public and responsible. Once public and responsible, it can no longer exist without becoming amenable to law. This has been the experience of all railroad amalgamations, both in this country and in Europe. The chief difficulty hitherto has lain in the fact that the would-be railroad reformers are unable to realize it.

We are perfectly aware of the answer which will be advanced against this doctrine. Judge Black will again dilate on the political dangers involved in thus letting development take its course. We shall have over again the whole cant of the discussion—it's stereotyped phrases: the *imperium in imperio*, the power behind the throne, and all the rest. Even admitting the soundness of this political argument, which we do not for a moment propose to do, the alternative would seem to lie between railroad combination and railroad consolidation. Under the pressure of that competition, which the League clings so closely to, the roads have of late years been consolidating with significant speed. The crushing-out and rolling-into-one process shows no signs of stopping. On the contrary, it is going on faster than ever, and each new turn of competition accelerates it. We really are unable to see that a dozen combined corporations are politically more dangerous than one consolidated one. They are infinitely less dangerous. Yet to that consolidated one competition is fast driving us.

We do not, however, admit the argument from political danger. These things regulate themselves. As we look at it, Mr. Fink is quite right from a public point of view in seeking to check discrimination and regulate competition through a systematic, organized combination of railroads. We doubt very much, however, whether he sees equally clearly the ultimate result to which his efforts tend. The thing will not stop here. The forces at work are too deep-seated and too subtle to be finally disposed of in this way. They will work to the distinct end of some sort of direct political responsibility. Exactly what this will be we do not pretend to divine. The course the telegraph is now taking foreshadows that of the railroad. From its inherent conditions the latter consolidates more slowly, but it does so equally sure. It is a law of development. Statutes may check, but they cannot prevent it. Those interested in the outcome of the railroad problem can, therefore, now most profitably watch that of the telegraph problem. The consolidation which controls the latter is at present on its good behavior. In the course of a short time we shall be able to form some idea of the degree of restraint which responsibility before public opinion will exercise over an unchecked combination. If it proves insufficient to protect the public interests, there is but one recourse—the government must intervene and extend its functions. How far and with what results, remains to be seen. Meanwhile, so far as the question in hand and the immediate present are concerned, our sympathies are entirely with Commissioner Fink in his efforts, and opposed to Mr. Thurber. If the latter could accomplish all that he hopes he would only aggravate the evils of which he complains, and in the existence of which we fully concur. He would break up, so far as he could, the one logical, systematic effort which has yet been made looking to something which might result in a solution of the railroad problem.

ANNUAL REPORTS.

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St. Johnsbury & Lake Champlain.

This company is successor through foreclosure to the Lamoille Valley, the Montpelier & St. Johnsbury and the Essex County companies, formerly known collectively as the Portland & Ogdensburg, Vermont Division. The road extends from the Connecticut River at Lunenburg, Vt., to Lake Champlain at Magua Bay in the town of Swanton, 120 miles. The following statements have recently been published.

The authorized capital stock is \$3,848,500; issued, \$3,562,550, being \$29,688 per mile. The bonded debt consists of \$600,000 first-mortgage 6 per cent. bonds. The Treasurer's statement is as follows:

First-mortgage bonds sold	\$116,000.00
Receivers' claim, debts, etc., prior to first-mortgage	121,600.00
Floating debt	250,730.00
Bonds not assenting to reorganization, to be exchanged for stock when presented	30,000.00
Total	\$517,730.00

Cash on hand

\$22,887.80

Personal property

45,000.00

First-mortgage bonds unsold

484,000.00

551,887.80

Excess of assets

\$34,157.89

The company has not yet been organized a year. The earnings for the six months ending Dec. 31 were as follows:

Gross earnings (\$808.88 per mile)

\$97,065.05

Expenses (71.31 per cent.)

69,241.67

Net earnings (\$231.87 per mile)

\$27,823.98

The net earnings were more than sufficient to pay the half year's interest on the full amount of bonds.

An extension from Swanton to Rouse's Point, N. Y., is said

to be under consideration, in order to give the road a connection for through business.

Chicago, Milwaukee & St. Paul.

At the close of the year 1880, which is covered by its latest report, this company worked 3,775 miles of road, having acquired 1,544 miles by purchase or construction during the year.

The equipment consists of 425 locomotives; 168 passenger, 17 sleeping, 4 parlor and 130 baggage, mail and express cars; 9,111 box, 1,419 stock and 2,785 flat and coal cars; 25 service cars.

The general account is as follows:

Stock, common	\$15,404,261.00
" preferred	12,404,483.00
Total stock	\$27,808,744.00
Bonded debt	67,172,000.00
Incumbrances assumed, bills payable, vouchers	1,050,496.64
Current accounts, advances, etc.	2,933,120.65
Income account, balance	4,343,283.16
Total	\$103,313,644.45
Cost of road	\$90,185,083.39
Securities owned	2,306,302.91
Materials and accounts	1,345,207.18
Cash	386,450.97
	103,313,644.45

Stock was increased by \$124,000 common during the year. The net increase of bonded debt, as shown by the table below, was \$25,822,500. Cost of road was increased by \$28,727,913.21, chiefly for new road acquired.

The detailed statement of bonded debt is as follows at the close of the last two years:

	1880.	1879.
Consolidated bonds	\$10,133,000	\$8,433,000
La Crosse Div., first mortgage	6,500,000	6,600,000
Iowa & Minn. Div., first mortgage	3,681,000	3,810,000
Prairie du Chien Div., first mortgage	3,674,000	3,674,000
" second	1,315,000	1,315,000
St. Paul Div. first	4,000,000	4,000,000
Chicago & Milwaukee Div. first	2,500,000	2,500,000
Iowa & Dakota Div. first	582,000	577,000
Iowa & Dakota Extension	4,226,000	3,500,000
Hastings & Dakota Div. first	121,000	160,000
Hastings & Dakota Extension	4,660,000	4,000,000
Southwestern Div. first	4,000,000	4,000,000
La Crosse & Davenport Div. first	2,500,000	1,785,000
Chicago & Pacific Div. first	3,000,000	3,000,000
Mineral Point Div. first	1,200,000	1,200,000
Southern Minnesota Div. first	6,800,000	6,800,000
Dubuque 1 st iv. first	6,622,000	6,622,000
Wisconsin Valley Div. first	1,700,000	1,700,000
Second mortgage bonds	387,000	496,000
Minnesota Central bonds	183,000	183,000
Milwaukee & Western bonds	215,000	219,000
Land-grant income bonds	373,000	373,000
Real-estate purchase bonds	97,500	97,500
Total	\$67,172,000	\$41,349,500

Of these bonds \$3,700,000 bear 5 per cent. interest; \$21,522,000 bear 6 per cent.; \$36,961,000 bear 7 per cent.; \$1,315,000 bear 7.3 per cent., and \$3,674,000 bear 8 per cent., making the yearly interest charge \$4,453,505.

The earnings for the year were as follows:

	1880.	1879.	Inc. or Dec.	P. c.
Freight	\$8,884,226.68	\$6,850,755.43	I. \$2,033,471.25	29.7
Passage	3,150,050.85	2,273,701.00	I. 885,349.85	38.9
Mail, etc.	1,042,841.08	888,363.35	I. 154,477.73	17.4
Total	\$13,086,118.61	\$10,012,819.78	I. \$3,073,298.83	30.7
Expenses	7,742,425.68	5,473,794.96	I. 2,268,630.72	41.5
Net earn.	\$5,343,692.93	\$4,539,024.82	I. \$804,668.11	17.7

Net earn. \$5,343,692.93 \$4,539,024.82 I. \$804,668.11 17.7

Gross earn per mile. 4,476.95 5,016.44 D. 539.49 10.7

Net. earn. per mile. 1,828.15 2,274.06 D. 445.91 19.6

P. c. of exps. 59.16 54.70 I. 4.46 ...

The earnings did not increase as fast as the mileage, as might be expected from the great extent of new or partly new road worked. The increase in earnings was very fair; that in expenses was probably largely due to increased train mileage over new lines.

Expenditures on account of improvements and additions were as follows:

Real estate, right of way and depot grounds	\$311,007.61
New round-house, shops, etc., Milwaukee	259,254.71
New viaducts, Chicago	40,396.78
New depot, etc., La Crosse	34,583.58
New shops, Savanna	16,684.67
New stock-yards, St. Paul	27,703.32
New bridge over the Mississippi at Sabula	304,176.21
New sidings	121,109.32
Permanent improvements	239,802.32
New equipment	2,498,103.43
Total	\$3,552,831.95

Permanent improvements include new bridges, buildings, etc., filling trestles and similar betterments of the road.

The traffic for the year was as follows:

Train miles:	1880.	1879.	Increase.	P. c.
Passenger	2,773,287	2,022,798	750,489	37.1
Freight	7,172,147	5,034,085	2,138,062	42.5
Wood and gravel	1,040,520	598,848	441,681	73.7
Total	10,985,903	7,655,731	3,330,232	43.5
Passengers carried	2,127,501	1,555,446	572,055	36.8
Passenger-miles	111,561,919	78,119,592	33,442,327	42.8
Tons freight carried	3,260,563	2,559,734	70,820	27.4
Tons-miles	504,876,154	401,595,734	103,280,420	25.7

Freight train mileage includes switching. Of the tons carried 43.1 per cent. was west-bound and 56.9 per cent. east-bound. Of the ton-miles 45.5 per cent. were of west-bound and 54.5 per cent. of east-bound business. Of the passenger-miles 55.1 per cent. were of west-bound, and 44.9 per cent. of east-bound passengers.

Some traffic averages are as follows:

	1880.	1879.
Earnings per train mile, passenger	114.00 cts.	112.00 cts.
" freight	124.00	136.00
Expenses per mile run, all trains	78.00	78.00
Maintenance of way per mile run	19.30	17.60
Motive power	20.90	20.60
Receipt per pass. per mile, east	2.92	...
" " " west	2.76	...
" " " average	2.84	2.93
Receipt per ton per mile, east	1.81	1.63
" " " west	1.71	1.88
" " " average	1.76	1.72

President Mitchell's report says: "The average price per ton per mile received for freight for a series of years past has been as follows:

Cents.	Cents.	Cents.			
1865.....	4.11	1871.....	2.64	1876.....	2.04
1866.....	3.76	1872.....	2.43	1877.....	2.08
1867.....	3.94	1873.....	2.50	1878.....	1.80
1868.....	3.49	1874.....	2.38	1879.....	1.72
1869.....	3.10	1875.....	2.10	1880.....	1.76
1870.....	2.82				

The average rate in 1880 being 42.8 per cent. of that for 1865.

" The statement of income account is as follows:

Gross earnings for 1880	\$13,086,118.61
Operating expenses, including taxes	7,742,425.68
Net earnings	\$5,343,692.93
Premium, interest and other income	324,298.13
Total	\$5,667,991.06
Dividend of Oct. 15, 3½ per cent. on common and preferred stock	\$968,931.04
Interest on bonds	2,837,383.61
Sinking fund, consolidated bonds	81,000.00
	3,887,314.65
Surplus for the year	\$1,780,076.41
Balance from 1879	\$3,531,537.79
Dividend of April 15, 3½ per cent. on all stock	968,931.04
	2,562,606.75
Balance, Dec. 31, 1880	\$4,343,283.16

" In our last report it was stated that the company owned and operated 2,231 miles of railway, of which 199 miles were embraced temporarily in other organizations. Of these 199 miles, 120 have since been transferred to this company, consisting of the Viroqua Railway (32 miles), the Madison & Portage Railroad (39 miles), both in Wisconsin, and the Dubuque Southwestern Railroad, extending from Farley to Cedar Rapids, in Iowa (49 miles). The Minnesota Midland (59 miles) and the Oshkosh & Mississippi (20 miles) are still held and operated by the company on contracts of lease, but the securities of both are almost wholly owned by this company.

The following roads have been purchased during the year:

	Miles.
Hastings & Dakota Extension, Glencoe, Minn., to Ortonville	128
Southern Minnesota, La Crescent, Minn., to Flandreau, Dak., with branch to Mankato	347
Chicago, Clinton, Dubuque & Minnesota, La Crescent to near Sabula, Ia., with four branches	100
Wisconsin Valley, Tomah, Wis., to Jenny	51
Mineral Point, Mineral Point, Wis., to Warren and branch to Platteville	89
Pine River Valley & Stevens Point, Lone Rock, Wis., northwest	89
Chicago & Pacific, Chicago to Byron, Ill.	89
Sioux City & Dakota, Sioux City, Ia., to Yankton, Dak., and branch to Sioux Falls	131
Total lines purchased	1,195

" The following additions to the lines of the company have been constructed during the year:

	Miles.
Branch to Libertyville	3
Chicago & Pacific Extension, Byron to Lanark	26
Davenport Div. Extension, Fayette, Ia., to Ft. Atkinson	21
Brookhead, Wis., to Albany	7
Janesville, Wis., to Beloit	14
Hastings & Dakota Extension, Ortonville west	78
" Millbank Junction northwest	22
Minneapolis, Minn., to Benton	28
Bridgewater west through Mitchell and beyond	80
Rock Valley, Ill., to Eden	10
St. Paul to Minneapolis	8
Flandreau, Dak., west to Madison	28
Egan to Dell Rapids	13
Dubuque Division, Midland Junction to Clinton	7
Total constructed	349

" The roads purchased and constructed give an increase of 1,544 miles, and make this company now the owner of 3,775 miles of completed road.

" Of the road constructed during the year 21 miles are in Wisconsin, 20 in Illinois, 36 in Minnesota, 42 in Iowa, and the balance in Dakota. There is in process of construction 22 miles, from Monroe on the Prairie du Chien Division to Gratiot on the Mineral Point Division, which will be completed at an early day.

stock was issued and sold to stockholders at 105. Notice has been given of redemption of the following securities in 1881, interest ceasing from the date of payment given: Atlantic & St. Lawrence, second-mortgage bonds, April 1; third-mortgage, May 1; Montreal & Champlain 6 per cent. bonds, July 1; International Bridge bonds not already drawn, July 1.

Agreements with the Montreal & Champlain Junction and the Michigan Air Line companies have been made and will be submitted for approval. An amended agreement (drawn to include a proposed extension) will be submitted with the Georgian Bay & Lake Erie Company, which is a consolidation of three companies—the Georgian Bay & Wellington, the Port Dover & Lake Huron and the Stratford & Huron.

Great Western, of Canada.

This company's report covers the system of 527.38 miles worked, the Main Line, from Suspension Bridge to Windsor being 239.38 miles; the Loop Line, from Glencoe to Ft. Erie, 145.50 miles; branches owned, 137.67 miles, and leased, 14.83 miles—the last named being a section of the Welland Railway used to make connection between the Loop Line and Suspension Bridge.

The company also leases the Wellington, Grey & Bruce, 168.35 miles; the London, Huron & Bruce, 68.59 miles, and the Brantford, Norfolk & Port Burwell, 34.74 miles, but the report gives only the net result from these 295.64 miles of road.

The report is for the half year ending Jan. 31, 1881, comparisons being made with the corresponding half of last year.

For the half year the total charges to capital account amount, less credits, to £7,775. Terminable bonds amounting to £67,400, of which £58,900 bearing 7 per cent. and £8,500 6 per cent. interest, have been redeemed. On the other hand, 5 per cent. perpetual debenture stock, amounting to £61,500, has been issued during the half year. By this operation a sensible saving in interest has been effected.

The revenue account is as follows:

	1880-81.	1879-80.	P. c.
Gross earnings.....	£213,042	£461,140	£51,962 11.3
Expenses.....	315,536	283,740	31,896 11.2
Net earnings.....	£197,506	£177,400	£20,106 11.4
Interest, loss on leased lines, etc.	98,734	98,190	544 0.6
Balance.....	£98,772	£79,310	£19,562 24.8
Det. G. H. & Mil. dividend... 0,246	0,246	0,246	
Balance from previous year Cr. 847	Dr. 6,260
Total surplus.....	£108,865	£72,950	£35,915 40.2

Expenses include transfers to reserve funds, and were 61.51 per cent. of net earnings, against 61.25 per cent. last year.

From the surplus the directors recommend the payment on May 7 of the half year's dividend on the 5 per cent. preference stock, amounting to £12,644, and a dividend on the ordinary shares (free of income tax), at the rate of 3 per cent. per annum, which will require a sum of £91,547, leaving to be carried forward to the next half year's account a balance of £4,674.

There was an increase in every branch of traffic except express. The freight tonnage for the half year was: 1880, 1,185,096; 1879, 1,041,532; increase, 143,564 tons, or 13.8 per cent. The increase in freight earnings was 15.5 per cent., through rates having been much better.

The following table shows a comparison by the earnings and working expenses per train mile for the last six corresponding half years:

Working expenses, excluding reserve and other funds.

Half years ended Jan. 31.	Earnings per train mile.	Per cent. of gross receipts.
1876	5 7	3 11 ¹ ₂
1877	4 9	3 8 ¹ ₂
1878	5 2 ¹ ₂	3 3 ¹ ₂
1879	4 11 ¹ ₂	3 2 ¹ ₂
1880	5 5 ¹ ₂	3 4 ¹ ₂
1881	5 54	3 54

Credit balances to the several renewal funds are: Ferry steamers, £27,155; locomotive, £115,266; car, £18,426; rail and bridge, £18,278; insurance, £2,055. The debit balance to leased lines suspense account is £40,978.

The statement of revenue for the entire year is as follows:

	1880.	1879.	Increase P. c.
Gross earnings.....	£950,476	£826,911	£123,565 14.8
Expenses.....	616,765	560,710	56,055 10.0
Net earnings.....	£333,711	£206,201	£67,510 25.4
Interest, etc.	201,870	197,162	4,717 2.4
Balance.....	£131,832	£99,030	£62,793 91.0
Det. G. H. & Mil. Div..... 18,493	18,493
Balance for dividend.....	£150,325	£69,030	£81,286 118.0

The report says: "The working of the leased lines for the half year, including interest on the bonds of the London, Huron & Bruce and the Brantford, Norfolk & Fort Burwell railways, has resulted in a loss of £14,196, an increase of £2,364 over that of the corresponding half year. It will be observed that this increase is in a great degree attributable to the large expenditure for maintenance of way still found to be necessary on the Wellington, Grey & Bruce line. The additional traffic interchanged with the Wellington, Grey & Bruce Company has amounted during the half year to £23,108. A sum equal to 20 per cent. thereof, or £4,622, has under traffic agreements to be invested in the bonds of that company at par on July 1 next."

The directors announced in their report for the half year ended Jan. 31, 1880, that a bill received the sanction of the Dominion Legislature authorizing the formation of a superannuation and provident fund for the officers and servants of the company. A resolution will be submitted to the shareholders at the approaching special meeting to authorize the directors to exercise the powers conferred upon the Company under this act.

The directors have much pleasure in reporting that the revenue of the Detroit, Grand Haven & Milwaukee continues to improve satisfactorily. The accounts of that company for the half year ended Dec. 31, 1880, after crediting the usual amounts to the various reserve funds, and making provision for the interest on the whole of the bonds guaranteed by this company, show a net revenue surplus of \$127,371. From this amount the Detroit, Grand Haven & Milwaukee Company has carried \$71,966 to a revenue suspense account, to be applied as may hereafter be determined, and have declared a dividend of 3 per cent. on the share capital, amounting to \$45,000, leaving a balance of \$10,405 to be carried forward to the next year's accounts. The directors mentioned in their last half year's report that the capital provided under the reorganization of the company would probably be sufficient to meet the ordinary requirements, and the experience derived from the subsequent working of the line confirms the correctness of this statement. In order, however,

LOCOMOTIVE RETURNS, NOVEMBER, 1880.

Master Mechanics of all American railroads are invited to send us their monthly returns for this table.

NAME OF ROAD.	MILEAGE.			MILES RUN TO			COST PER MILE IN CENTS FOR					AVERAGE COST OF Coal, per ton.....	
	Total Number of locomotives in service.....	Average per engine number of miles operated.....	Total Cord of wood Ton of coal.....	Pint of oil.....	Repairs.....	Fuel.....	Shops.....	Miscellaneous.....	Engines, firemen and wipers.....	Total.....			
Allegheny Valley, River Division*.....	130 38	84,398	9,210	34.88	25.02	20.30	0.001	5.26	3.74	0.51	6.33	15.84	
Low Grade Div.*.....	120 18	37,638	2,091	25.30	18.85	18.80	0.001	3.28	3.54	0.64	6.05	14.11	
Central Pacific, Western Div.*.....	200 27	75,000	2,000	25.00	20.00	20.00	0.001	5.00	3.50	0.60	7.00	4.60	
North & San Pablo Div.*.....	104 24	8,359	5,048	25.00	9.00	5.76	23.19	0.46	0.35	7.00	37.48	0.60	
Visalia Div.*.....	157 18	56,927	3,841	33.25	17.73	17.73	0.017	2.17	2.82	0.49	0.78	7.60	
Tulare Div.*.....	170 12	35,157	2,929	28.52	13.39	4.59	26.59	0.65	0.15	7.77	40.75	7.60	
Los Angeles, San Diego, Yuma & Wilmington Div.*.....	416 28	103,365	3,062	41.20	15.88	8.88	18.39	0.55	0.18	6.84	29.60	7.60	
Gila & Tucson Div.*.....	407 27	107,846	3,924	47.45	18.23	1.31	15.99	0.49	0.27	7.05	25.71	7.60	
Californian Pacific Div.*.....	179 13	10,760	2,674	39.41	1.11	1.11	1.11	0.49	0.00	6.00	32.13	7.60	
Stockton & Copperopolis*.....	100 9	6,031	2,001	51.81	18.11	1.31	8.95	0.49	0.46	6.00	23.58	7.60	
Sacramento & Copperopolis*.....	119 41	116,621	2,844	22.65	19.88	14.79	19.43	0.45	0.26	8.44	33.33	7.60	
Oregon Div.*.....	151 6	21,742	3,624	41.10	23.63	4.79	11.19	0.41	0.09	7.10	23.58	4.60	
Truckee Div.*.....	205 28	80,414	2,872	29.72	71.57	19.00	2.98	24.01	0.48	0.26	7.84	35.57	7.60
Humboldt Div.*.....	200 29	65,378	3,266	34.33	21.06	5.30	22.05	0.43	0.27	7.75	35.80	7.60	
Salt Lake Div.*.....	219 28	95,567	3,448	28.35	17.34	4.00	26.79	0.51	0.16	7.18	38.64	7.60	
Chicago & Eastern Ill. Main Line*.....	138 1	104,574	2,000	38.00	18.00	15.00	18.00	0.50	0.10	5.00	12.20	7.60	
The Big Four Div.*.....	72 72	20,760	2,000	27.60	18.21	2.90	18.30	0.50	0.00	5.00	12.35	7.60	
Cleveland & Pittsburgh*.....	228 85	109,930	2,275	30.00	18.21	17.40	20.80	0.50	0.35	6.47	17.35	2.80	
Cleveland, Tus. Valley & Wheeling*.....	158 21	65,161	3,103	33.06	15.29	5.39	2.61	0.59	0.00	5.81	14.38	0.70	
Dela. Lacka. & Western, Bloomsburg Div.*.....	80 25	72,925	2,588	29.12	8.70	0.55	4.49	8.74	0.00	6.00	19.07	5.69	
Erie & Pittsburgh*.....	98 29	63,870	2,202	30.21	18.63	4.18	4.85	0.52	2.10	6.41	24.05	1.90	
Green Bay & Mineral Point*.....	332 49	118,600	2,824	31.43	44.24	5.23	8.83	0.51	6.10	5.83	24.77	3.50	
North & Texas Central*.....	104 17	35,835	2,244	31.02	30.58	3.54	0.05	0.59	0.62	4.56	17.71	3.00	
Illinois Central, Chicago Div.*.....	365 110	301,516	2,722	30.27	14.81	2.99	4.01	0.31	0.00	6.01	14.23	3.75	
Middle Div.*.....	101 23	27,005	1,217	37.33	19.88	2.07	3.83	0.22	0.00	4.63	10.75	3.75	
North Div.*.....	345 6	14,682	2,389	26.42	14.00	12.00	3.84	5.55	0.32	5.70	15.43	3.75	
Springfield Div.*.....	113 12	35,274	2,030	28.89	19.17	3.56	4.51	0.29	0.00	5.03	13.41	2.90	
Iowa Div.*.....	401 44	127,002	2,884	25.27	15.12	3.77	8.19	0.32	0.00	5.70	17.69	2.00	
Jefferson, Madison & Ind. Div.*.....	229 40	108,179	2,704	37.49	15.66	2.60	6.72	0.30	1.91	5.78	19.14	2.00	
Kan. City, St. Jo. & Council Bluffs*.....	247 38	113,080	2,692	29.20	20.90	4.00	4.20	0.30	0.00	5.80	16.50	2.00	
Lake Shore & Michigan Southern*.....	83	215,559	2,597	31.08	64.40	3.71	8.54	0.34	0.00	6.36	18.97	2.60	
Erie Div.*.....	118	296,888	2,516	31.84	28.43	5.22	7.61	0.35	0.00	6.05	19.73	2.27	
Toledo Div.*.....	90	211,095	2,345	24.									



Published Every Friday.

CONDUCTED BY

S. WRIGHT DUNNING AND M. N. FORNEY.

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EDITORIAL ANNOUNCEMENTS.

Addresses.—Business letters should be addressed and drafts made payable to THE RAILROAD GAZETTE. Communications for the attention of the Editors should be addressed to the EDITOR RAILROAD GAZETTE.

Advertisements.—We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns our own opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.

Contributions.—Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress, and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to ALL DEPARTMENTS of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.

WHAT TO DO ABOUT STRIKES.

The labor question with all its momentous significance is upon us again, and has assumed the form of strikes as it has done before, and in all probability will do many times hereafter. That it is a disease inherent to a condition of immature social development, just as measles and whooping cough are to us physically, comparatively few will believe, and the feeling among many employers still is that a strike has about it somewhat of the nature of a poison which should be eradicated, or that it is rebellion which must be forcibly suppressed. Now it is neither the one nor the other. To be rebellion it must be resistance to some authority. What authority has an employer to say that those he employs shall work for any rate of wages or for any number of hours? Such authority happily disappeared with slavery, although so many employers seem not yet to have fully realized that it has totally passed into oblivion. One man is not obliged to work for another unless he chooses to, neither are two men or two thousand. The one or the two, or the two thousand, may refuse to work, and there is no authority to prevent them. We have, heretofore, quoted Professor Fawcett, who, in his Manual of Political Economy, says: "Strikes are inseparably associated with our present economic system. As long as the relations between employers and employed continue to be analogous to those existing between the buyer and seller of a commodity, it must often happen that the one party will refuse to accept the price which is offered by the other for labor; if the refusal is persisted in, a strike inevitably ensues." It is therefore the greatest fatuity to suppose that strikes can be prevented or eradicated. A temporary advantage may be gained by the employers over the men, or vice versa, but the same questions will occur again and again, as experience has abundantly shown.

But while many employers will admit all this to be true, they refuse entirely to recognize the right or the justice of the men to combine to secure an increase of

pay or diminished hours of work. A common expression is: "We will not recognize a committee," meaning one representing a combination of their employés. We have in mind now three different men, each one eminent in his business, and of distinction for his intelligence outside of it. Each one has expressed this sentiment and has adopted it as a rule of action in his intercourse with his employés. But why should a committee not be recognized, and treated with, as the representatives of others associated with them? The three gentlemen referred to all say that they will negotiate with any of their men individually, but not with a representative committee. Now, to quote again from Professor Fawcett:

"When men labor simply for hire, it is manifest that the adjustment of wages is analogous to the bargaining which is carried on by the buyer and seller of a commodity. Although it is no doubt true, that the price at which a commodity is sold approximates to the cost at which it can be produced and brought to the market, yet the price at which it is actually sold is often to a considerable extent influenced by various circumstances which may happen to place the buyer in either a better or worse position for bargaining than a seller. In a similar way wages ultimately depend upon the amount of capital and upon the number of laborers; yet the wages which, at any time, are paid in a certain trade are, to a considerable extent, influenced by the relative advantages possessed by employers and employed for carrying on the bargaining by which wages are adjusted."

Is it a fact, then, that the men singly are in as favorable a position as their employers to carry on the bargaining for the rate of wages? No better answer to this can probably be given than to quote the same authority again. He says:

"It is impossible fully to understand the effects resulting from combinations of workmen, unless it is remembered that similar combinations are formed by their employers.

"Let it be supposed that the iron-masters at one of their meetings decide, in consequence of a prosperous state of trade, to advance wages 10 per cent. The iron-masters, who like other people are liable to mistakes, may not have made such an advance in wages as the state of the trade would fairly admit. Wages might perhaps have been raised 20 per cent, without unduly trenching upon profits. A laborer, impressed with the conviction that an advance of 10 per cent is not sufficient, demands something more from his employer. The employer, who has entered into a compact with others of his class as to the wages which shall be paid, must at once feel the advantageous position he occupies in resisting the demands that the laborers make upon him, if they have no organization for combined action. He knows that if any of them refuse to work for him they will be unable to obtain higher wages from other employers in the locality; because by previous agreement a uniform rate of wages prevails. A laborer has seldom saved sufficient to be able to maintain himself for any length of time without work; he makes a great sacrifice if he seeks another occupation to which he is unaccustomed, and especially at a time when his iron trade happens to be exceptionally prosperous. It therefore appears that the bargaining which often goes on in adjusting wages implies a struggle, or a conflict of effort between employers and employed; in this conflict a great advantage will be possessed by those who can act in concert over those who simply act as isolated individuals."

But it may be said by those who refuse to recognize the combinations of these men, We do not combine with others and therefore in this respect have none of the advantages over the men referred to above. While it may be literally true that employers have no formal combination, yet as a matter of fact, on account of the smallness of their numbers, and in this respect identity of interest, they can, without any compact with each other, act together. To illustrate how this can be done, the case of the railroad shops at Altoona, Pa., Bloomington, Ill., and Elkhart, Ind., may be referred to. In each of these places hundreds of men are employed in the railroad shops. The latter in each of these places are under the management of one man. In his case combination with other managers is unnecessary. In dealing with his men individually, and especially with those who own property at these places, of which class there are many, the manager has a great advantage in bargaining for the rate of wages. He knows that there is no other place for the men to get work than in the shops over which he exercises authority, unless the men move away from where they live at much inconvenience and may be loss. By combining, though, the men would improve their position very materially in negotiating the rate of wages, because the manager would know that as a last resource a strike could be agreed on which would bring business on the respective roads to a stand-still, and might inflict great loss on the company owning the shops. This would be a strong inducement to the company to yield to the demands of its men if they could be fairly conceded. Each party would thus be placed more nearly on an equality in arranging terms.

The places referred to are, it is true, extreme cases. But as a matter of fact, in all places where there are persons or corporations who employ a large number of men, there is little difficulty in coming to an understanding with each other without any formal combination, which gives them a great advantage over the men, if the latter are not combined, in carrying on negotiations about wages.

As a matter of fact though, employers often do combine to control wages, and quite curiously, those who look with great disfavor on combinations of men to

put wages up seldom have a word to say against those organized to keep the rate of pay down. We have everywhere combinations for all kinds of purposes, and the extent to which co-operation is carried in all departments of human enterprise is one of the marked characteristics of this much praised nineteenth century.

Viewed from this point, then, one of three things must happen if the men combine in arranging the rate or other conditions of their pay: either they will be in a better, an equal, or a worse position than their employers in bargaining for their wages. They cannot be in a better position, because it is much easier for the employers to combine or come to an understanding, as there are fewer of them, and they are better trained than the men for carrying on such transactions. Besides, the superior resources of the employer always give him an advantage in a contest of this kind over his workman, who can seldom maintain himself and family for any length of time without work.

The only objection then which can in this respect be made to workmen combining to regulate or influence wages must be that it places them more nearly on an equality with their employers in conducting their negotiations, because it is not likely that the latter would object if the former placed themselves at a disadvantage. In other words, the power which employers have of not "recognizing" combinations, or the committees which represent them, gives them an unfair advantage over the men which, it is to be regretted, some employers are unwilling to surrender. Of the wisdom or justice of such an attitude it is not necessary to speak here.

It will of course be said that this is not the real ground of refusing to "recognize" combinations. One of the most common reasons given is that among the laborers there are "bad men," who foment discord and insubordination, are dangerous advisers, etc., etc. The answer to this, which has been the argument of oppression in all ages, is, "Who made you a judge or your brother's keeper?" There is no ground for refusing justice because the moral character or the mental endowments of the persons we deal with do not meet with our entire approval. That the ungodly have no rights that the saints are bound to respect is a doctrine that has caused more wrong and cruelty than perhaps any other. We have heard particular trades unions condemned in the most sweeping manner for no other reason than that the speaker believed some of their managers to be untrustworthy. What would become of the Republican or Democratic party, the church, the state or national government, or, in fact, any other human institution, if judged by such a standard? To live up to such a doctrine we would logically be compelled to adopt Nihilism as our creed. As a matter of morals we are not justified in taking advantage of a man because we distrust him.

What we are pleading for is the adoption of the same methods in settling disputes about wages that are employed in all civilized communities for settling other disputes. These are embraced under the scriptural phrase, "Come let us reason together." To do this, in most cases, the recognition of some committee or other representatives of the men is essential. It is impracticable to hear each man individually, as some employers profess they are willing to do, and if it were not it would be impossible to present the workmen's side of the case so forcibly as through proper representatives. Altogether the wisest plan seems to be, when there is discontent among the men, cordially to meet their committees, and if necessary invite them to a conference and give its members a full, free and respectful hearing. If an agreement with such a committee is possible, so much the better; both employers and men will be benefited by the conference. If such an agreement is not possible, in the language of Mr. Gowen, "Let the workingmen have their committee, and the operators have their committee, and, if they cannot agree, let some umpire decide between them."

It is essential, however, that such negotiations should be conducted under the outward restraints, at least, of mutual respect, and that those engaged in them should disabuse themselves of the idea of class, and freely confer together as associates, as they are. It is believed that if conferences with the representatives of the men were sought instead of being rejected, as they so often are, the interests of all would be promoted. Of the advantages of such intercourse, Messrs. Straiton & Storm, who have employed arbitration in their works in New York very successfully, say:

"The employer very frequently holds himself aloof, is unwilling to have any intercourse whatever with his employé, except in that pertaining to his work, for fear that his self-respect might be compromised. We think this is a mistake. If the employer, by his great intercourse with the commerce of the world, has it in his power to enlighten the employé, and fails to avail himself of it, is not he in a measure an

swerable? If those who work for him, and who are constantly studying out their own respective interests as they understand them, should be led or allow themselves to be drawn into a false position, or contrary to the dictates of reason, and he (the employer) refuses to reason with them, they are left to the mercy of agitators and demagogues, who usually profit by their (the workmen's) misfortune.

"We think that in a board of arbitration these things are obviated, and we also think that the employer should consult directly with the representatives of his employes."

It is to be regretted that there is not room here to give some account of the methods and success with which this firm has introduced arbitration into its establishment for the settlement of disputes about wages.* But after much experience, they give the advice which we have indicated. How unlike this is the action of the President of the Third Avenue Street Railroad of New York, reported in the *Herald* of the 22d inst., in which it is said: "A committee of Third avenue drivers presented a petition on Wednesday to President Lyon, for either fewer hours or higher wages, and the drivers who presented that petition have since been discharged by the company." We do not hesitate in condemning its course as an insufferable act of tyranny on the part of the company, unless there was some reason which does not appear for discharging the men. That there should be something so culpable in petitioning for more pay or fewer hours work as to merit discharge is preposterous, and the act without other justification would be better suited to the longitude of Russia than it is to this country.

The length of this article, though, requires an abrupt close.

That arbitration is an infallible remedy for all labor disputes is not believed or asserted. The report of the Bureau of Statistics and Labor, referred to in a footnote, contains a short history of industrial arbitration in this country. To a great extent it is a history of failures, generally through a want of good faith in one or the other of the parties, as often perhaps in the employers as the employed. Successes, though, are reported, some of them very encouraging. Its early history was very much the same in England as here, but by experience and the education which the failures taught it has there had a very great degree of success. The following account of its use in one branch of trade, taken from the *Iron Age*, must conclude this article:

"The annual report of the 'Board of Arbitration and Conciliation for the North of England Iron Trades,' which is just at hand, shows that this method of settling disputes is not only holding its own in those trades in which it has been tried in England, but is recovering from the temporary disuse into which it had fallen for a time. As is well known, this trade is a very large one, and the board, which is organized from the employers and employed in the rolling mills, has been in existence since 1859, and now regulates the wages paid on an output of 500,000 tons.

* * * * *

"A second feature is the slight expense. The total cost of this system is a fraction over two shillings for each man who was a member Dec. 31, 1880, or, as the works pay as much as the men, this would reduce the actual expense to a little over one shilling per man per year. Compare this with the expense of a strike. A strike that lasted two hours would cause as great a loss to the men and works as this board—which for more than ten years has prevented all general strikes—costs per year to each man and works."

Recent Features of the Grain Movement.

Three things have affected the movement of grain to and from the Northwestern markets recently in a somewhat unusual way. One of these has been the blockaded roads and railroads in the country west of Lake Michigan—west and northwest of Chicago and Milwaukee—which have prevented making shipments to these markets and often to any others much of the time; another has been the unusually large movement of export grain down the Mississippi. We have no record of these other than the record of New Orleans receipts, which is complete enough, but chronicles shipments made at St. Louis generally about two weeks earlier than the date of the New Orleans receipts. Now, as we have often said, New Orleans receipts have been smaller since December this year than last (6,150,000 bushels down to April 16, against 7,156,000); but last year's movement was exceptionally large, and was greatest in January, while this year the heavy movement has been recently; it was 21 per cent. smaller in February this year than last, but 23 per cent. greater in March, and a great deal more has been said about the movement this year, and probably it has been carried at less than last year's rates; at least the railroads, carrying this year at the same rates as last year in March, have found more difficulty in competing with the Mississippi route. Thus the open river route to New Orleans has attracted shipments to St. Louis at the same time that the blockaded roads of the Northwest have repelled them from Chicago and Milwaukee, and for a few weeks from Toledo. Now, if we examine the records of the

receipts of the several Northwestern markets, we find that Chicago has had a much smaller and St. Louis a much larger proportion of the total receipts since January than in that month. Thus the percentage of the total receipts that arrived at each of the seven Western markets in each of the three months ending with March, and for the whole quarter, has been as follows:

	January.	February.	March.	The quarter.
Chicago	41.7	41.2	29.3	36.3
St. Louis	14.8	19.4	28.7	21.9
Peoria	15.2	14.0	12.6	13.8
Toledo	8.2	7.5	15.6	11.2
Milwaukee	12.6	9.0	5.6	8.7
Detroit	4.6	4.9	3.4	4.9
Cleveland	2.9	4.0	2.8	3.1
Total	100.0	100.0	100.0	100.0

The snow blockades have worked against the northern markets all this winter, but probably more in March than in the earlier months, and the export movement down the Mississippi, as we have said, favored St. Louis receipts more in March than in the earlier months.

Last year the percentages of the several markets in successive months were:

	January.	February.	March.	The quarter.
Chicago	42.9	34.6	43.5	40.7
St. Louis	25.4	28.6	23.2	25.4
Peoria	9.2	10.4	10.3	10.0
Toledo	6.4	12.6	12.9	11.1
Milwaukee	10.9	7.2	5.4	7.4
Detroit	3.4	2.3	3.4	3.1
Cleveland	1.8	4.3	1.3	2.3
Total	100.0	100.0	100.0	100.0

The difference this year at Chicago is a larger percentage in February and a much smaller one in March; St. Louis had a very much smaller percentage in January and February this year, but a larger one in March, when its receipts were nearly as large as Chicago's.

The number of bushels of grain and the percentage of the aggregate receipts arriving at each of these seven markets during the quarter have been:

	Bushels.	P.C. of totals.
	1881.	1880.
Chicago	13,380,474	20,060,332
Milwaukee	3,219,184	3,657,935
Toledo	4,163,582	5,457,093
Detroit	1,815,305	1,511,017
Cleveland	1,149,490	1,144,808
St. Louis	8,088,685	12,503,756
Peoria	5,090,635	4,935,960
Total	36,907,305	49,272,001
	100.0	100.0

There being a decrease of about one-fourth in the aggregate receipts of these seven markets, Chicago, we find, has a decrease of one-third (33.3 per cent.), but St. Louis a still larger decrease (35.3 per cent.), while Detroit, Cleveland and Peoria have actually made small gains in the quantities received, and all the markets, except St. Louis and Chicago, have gained in the proportions received by them. Thus, in comparison with last year the Mississippi River market has not gained, but lost, and the loss of it and of Chicago has been in favor of the interior markets, or those which do not have much advantage from either lake or river shipments, and chiefly in favor of Peoria, which stands between the chief lake and the chief river port, but usually does not ship by way of either, but chiefly through by rail. It has been in favor of Peoria during the past winter that it has been much of the time the first market south of the blockaded roads, and that part of the time at least grain from lines which generally carry to Chicago could carry to Peoria when the way to Chicago was obstructed.

While the snow blockades and the Mississippi River movement were favoring receipts at New Orleans, the division of the receipts of the several Eastern Atlantic ports would naturally suffer no other change than that caused by the reduction of Northwestern shipments at a time when they could be made freely from the great winter wheat country in the Ohio valley, whose local roads are, to a great extent, branches of the trunk lines which carry chiefly to Baltimore and Philadelphia, comparatively little to New York, and very little to Boston. Now until recently the distribution has been in accordance with this supposition. Baltimore has had comparatively large and New York comparatively small wheat receipts.

But there have been some irregularities of rates, which, if practiced by all alike and to all places alike would have had no effect on the distribution of the grain receipts among the several Eastern ports: but if made by a company carrying only or chiefly to one or two of the ports would be likely to increase the proportion of the grain going to those ports.

Now, the recent returns show a large increase in the percentage of the receipts at New York. The percentage of the total Atlantic receipts arriving at each leading port for each of the past six weeks has been:

Week ending—	New York.	Boston.	Phila.	Balti.	New Or.
March 5	34.7	8.2	11.0	24.3	19.5
" 12	36.9	12.0	13.7	27.2	9.5
" 19	34.0	9.2	16.0	28.3	11.4
" 26	37.8	10.2	12.6	25.3	13.1
April 2	39.6	7.5	11.3	22.4	18.5
" 9	45.0	12.5	10.1	25.6	4.3
" 16	47.7	13.2	7.1	13.9	16.8
Jan. and Feb.	36.0	14.9	14.4	21.5	10.2

It should be said that one of the roads was charged

with cutting rates so as to have diverted considerable business in February as well as March, and another not soon enough to effect Atlantic receipts much until near the end of March. If we compare the percentages received at each port in the first two months of the year (given in the last line) with those of the last three weeks, the indications of diversions by discriminations in rates may be observed, New York gaining very largely, and, in the last week, Philadelphia and Baltimore losing largely.

The weekly grain exports have recently fallen off somewhat. But they are still much larger than they were a few weeks ago. The average for the last four weeks was 4,094,223 bushels, against an average of 3,559,302 bushels in the four weeks previous. They are, however, less than at this time last year, though the difference is partly made up by the larger flour exports this year. Thus the exports of flour and grain for six successive weeks ending April 20, this year and last, have been:

Week ending—	Flour, bush.		Grain, bush.	
	1881.	1880.	1881.	1880.
March 16	148,441	59,378	3,975,208	3,679,890
" 23	108,806	56,054	3,786,663	5,406,028
" 30	129,789	35,630	4,316,444	4,069,295
April 6	120,065	58,606	4,422,442	5,299,033
" 13	88,524	59,917	4,099,384	4,386,368
" 20	138,759	91,014	3,528,623	4,748,482
Total	735,074	361,499	24,128,766	27,589,046

In these six weeks the average weekly exports of grain were 4,021,461 bushels this year, against 4,598,174 last, a decrease of 576,718 bushels, or 12½ per cent.; but the average weekly exports of flour were 122,512 barrels this year, against 60,250 last year, an increase of 62,262 barrels, or 104 per cent. This increase in flour was equivalent to 280,179 bushels of wheat, or nearly one half the decrease in grain (which is almost entirely in corn).

Considering that the whole movement last year was extraordinarily large, never before equalled while lake and canal navigation was closed, the movement this year, as a whole, must be considered satisfactory. The shipments for the past two weeks from lake ports have been extraordinarily large for rail shipments. During the week ending April 22 the shipments from Chicago and Milwaukee were 20 per cent. greater than last year, though last year in that week navigation was open and most of the grain shipped from these ports went by lake. It is probable, however, that the large shipments this year were made because they were taken at less than the regular rate, and that it was understood that this privilege would last but a few days. As is known, there was a general and public reduction of rates to the basis of 25 cents from April 11 to April 16. The companies assumed to advance this rate to 30 cents April 18 without giving the regular ten days notice. It is doubtful whether they could enforce this, however, having once published that they would give ten days notice of an advance, and at all events it does not appear that they did enforce it. The large shipments of last week appear to have made almost entirely at the 25-cent rate, either directly or through shippers who had made engagements for quantities at that rate before it was advanced. If this is true we may not expect to see the effect of the advance from 25 to 30 cents until after April 26.

Northwestern Lumber Production and Traffic.

The Northwestern lumber traffic for the six years from 1873 to 1878, inclusive, remained almost stationary. The *Northwestern Lumberman* has collected elaborate statistics showing the lumber product of the several pine lumber districts of Michigan, Wisconsin and Minnesota for eight years past. These show that the product of 1873 (3,993,780,000 ft.) was not quite equalled again until 1879, the 1877 product being smallest, but that of 1878 almost the same. But there was an increase of one-third from 1878 to 1879, bringing it up to 4,807,000,000 ft., and a further increase of one-sixth from 1879 to 1880, when the product was no less than 5,651,295,000 ft.—40 per cent more than in 1873, and 55½ per cent more than in 1878. This tremendous increase of production within two years, and after a long period of stagnation, is one of the most significant signs of the times. The pine forests of these states (nearly all the lumber comes from the forests of Michigan and Wisconsin, and comparatively little from Minnesota) supply white pine more or less to the East and South, and even to Europe, it is true; but the great bulk of their product goes to the Western States, and particularly to the prairies, which get nearly all the lumber for building, and most of that for fencing, from these states. When the settlement of the new prairie country goes on slowly, and when in the settled parts of the prairie states the farmers are not prosperous, the demand for lumber is comparatively light, but when armies of settlers are taking up the govern-

ment and railroad lands of Minnesota, Dakota, Iowa, Nebraska and Kansas, and the farmers further east are prosperous, the demand is immense. At all times it gives the chief west-bound freight to the railroads west of Lake Michigan, and the amount of it, even in dull times, is enormous.

The *Lumberman* divides the lumber-producing territory into four principal districts. The one farthest east, including the Saginaw valley and the Lake Huron shore, which it calls the "Saginaw District," ships chiefly to points east and south, though as it is the chief source of supply of Toledo, doubtless a large amount of its product is carried west by the Wabash road. Its increase has not been quite so great as the average.

The "railroad and interior mills" of Michigan form a second district, whose product is distributed almost exclusively by rail, much of it going south to supply Southern Michigan, Ohio and Indiana, but some doubtless turning to the west. In this district production has been comparatively stationary during the eight years, and in 1880 it was about 11 per cent. of the whole, while that of the "Saginaw District" was 20.3 per cent. of the whole.

Next west we reach the "Chicago District," which includes the mills on the east coast of Lake Michigan and on the Green Bay shore in Wisconsin, which ship most of their product by Lake Michigan to Chicago, Milwaukee and Racine (mostly to Chicago), whence it is distributed by rail to the west, southwest and south. In this, as in the aggregate lumber production, there was not much change from 1873 to 1878, but from 1878 to 1879 there was an increase of 22 per cent., and from 1879 to 1880 an increase of 18 per cent.—not quite so much as the average. Last year the production of this district was 31.9 per cent. of the total.

The fourth and last of the lumber-producing districts is in Central and Western Wisconsin and Eastern Minnesota; and its product is, for the most part, shipped direct from the mills by rail to the place of consumption, or else down the Mississippi (sometimes in logs) to various points where the river is crossed by railroads. This district is nearer the West than any other, and much of it being on tributaries of the Mississippi, it can supply the South readily by that stream. Its product has more than doubled since 1878, but 1878 was the year of its lightest production, being 24 per cent. less than in 1873 and 30 per cent. less than in 1875. This is the newest of the lumber districts—the one last attacked, but it has now become the most productive of all, turning out, in 1880, 36.6 per cent. of the total. In 1878 it produced 33.9 per cent., in 1878 only 28.2.

The product of the mills on several railroads is reported. On some of the lines the product has fluctuated greatly, and was not especially large last year. Last year the Grand Rapids & Indiana mills turned out more than in any preceding year, and more than those on any other railroad. Next stand the mills on the Wisconsin Central and those on the Wisconsin Valley roads, their product being about 142,000,000 ft. each, but not reported before 1880. The Flint & Pere Marquette mills are credited with 15 per cent. more than in 1879, but with very little more than in 1874, while the Chicago & West Michigan, the Detroit, Lansing & Northern, and the Michigan Central mills all produced considerably less than in 1879 or 1878, and the Michigan Central mills (on its Detroit & Bay City and Jackson, Lansing & Saginaw divisions) produced twice as much in 1875, 1876 and 1877 as in 1880. In course of time the lumber within reach of a railroad is cut off, and then this traffic fails. If the land is worth cultivating (land which has been covered with pine alone usually is not), the road is likely by that time to have a better, if not a heavier, traffic in its place, however.

The sources of the supply of pine lumber, and the fluctuations in the production in different districts deserve careful study, because the lumber is one of the largest items of traffic in the West, and different roads carry from different districts. For instance, the last district mentioned (which the *Lumberman* calls the "West of Chicago District") gives traffic almost exclusively to roads west of the Mississippi, including several too far north to get lumber from Chicago or even Milwaukee. But this lumber competes with that shipped from Chicago, as the roads extending southward and southwestward from St. Paul, such as the Minneapolis & St. Louis and the St. Paul & Sioux City, carry it to junctions with the roads extending from Chicago westward. And by shipments down the Mississippi to railroad crossings, this lumber comes in the way of all that from Milwaukee, Chicago and Toledo that would cross the river. This makes the adjustment of lumber rates as between Chicago and Mississippi River points a very delicate matter, to aid in which the Southwestern Railway Association last year called in a committee of lumber dealers of the different places.

Record of New Railroad Construction.

This number of the *Railroad Gazette* contains information of the laying of track on new railroads as follows:

Nashville & Tuscaloosa.—A branch is completed from near Graham, Tenn., to Warner Furnace, 1½ miles. Gauge, 3 feet.

St. Paul, Minneapolis & Manitoba.—The *Grand Forks, Fargo & Barnesville Branch* is completed by laying track from Hill City, Dak., south 16 miles.

Savannah, Florida & Western.—This company's *East Florida* line is completed by laying track from a point a mile and a half west of Jacksonville, Fla., north to St. Marys River, 20½ miles. Gauge, 5 feet.

Atlantic & Pacific.—Extended from Crane's Ranch, N. M., west to New Wingate, 20 miles.

This is a total of 67 miles of new railroad, making 906 miles this year, against 1,096 miles at the corresponding period in 1880, 891 miles in 1879, 267 miles in 1878, and 269 miles in 1877.

EXAMINATIONS FOR COLOR-BLINDNESS will be made obligatory in Massachusetts by a law recently passed by the Legislature and approved April 11, which will take effect July 1. This law requires that all employees whose duties require them to distinguish the form and color of signals, shall be examined "by some competent person employed and paid by the railroad company" for color-blindness or other defects in vision. And this examination must be repeated every two years. The law differs from the Connecticut law passed a year ago, in not providing official examiners and in requiring the companies and not the men to pay the fees. As to who is a "competent person" to examine for color-blindness, it apparently leaves that to the courts. There is a fine of \$100 for employing a person not examined by "a competent person;" and if a company should intrust the examination to a conductor, as one is said to have done last year, we may expect Dr. Jeffries to make complaint, and to bring forward mountains of evidence that only a special student of the eye is competent. And it is doubtless true that the ability to test for color-blindness does not come by nature, any more than reading and writing; but it can be acquired, and it is not necessary to be a physician in order to acquire it, and at this time very few physicians have it. But it requires a special study, and is not to be picked up in an odd afternoon by any one who knows how to read. To test for other defects of vision requires more of the medical, or rather optical, knowledge, than to detect color-blindness. The best policy for the railroads probably will be to have their own surgeons, when they have any, qualify themselves and make the examinations; and if they haven't any they will do well to get some. Good service for examinations may be had without great cost, and there are other points than vision on which a physician should examine a candidate for entering railroad service.

THE JOINT EXECUTIVE COMMITTEE has held one day's session as we go to press, but will continue its meeting Thursday, and possibly Friday. At Wednesday's meeting little more was done than to bring up the several subjects mentioned in the call, and refer them to committees, who were to report on them before the meeting took action; but the Committee on Classification made a report making some changes in classification, which were adopted; and another measure adopted will reduce the rates on first-class *east-bound* freight (Chicago-New York) from \$1.20 to \$1, and on second-class from \$1 to 90 cents per 100 lbs. These upper classes are usually not changed when grain and provision rates are changed. The only change in them for many years was a few years ago, when they were reduced from \$1.50 and \$1.25, respectively, to \$1.20 and \$1. Together they form only about 1 per cent. of the east-bound freight.

NEW ORLEANS-LIVERPOOL GRAIN RATES are reported to have been 6d. per bushel last week for vessels chartered for grain—not filling out cotton cargoes with grain. At the same time shipments were taken by steamers from New York for Liverpool at 3½d., though the commoner rate that week was 4d. The difference between 4d. and 6d. is just about in proportion to the lengths of the two voyages. There is now an unusual supply of shipping at New Orleans, owing to the arrival of many cargoes of English rails intended for new railroads west of the Mississippi; but the present rate from New York is exceptionally low.

THE RAILROAD COMMISSION BILL has passed the New York Assembly by the decisive vote of 74 to 33. It provides for three commissioners, with powers generally like those of the Massachusetts commissioners—that is to make investigations and reports—the chairman to receive \$8,000 and the others \$5,000 a year. The bill now has gone to the Senate, where its advocates seem not at all sure of its passing.

NEW PUBLICATIONS.

The *Discussion on Steel Rails* at the recent Philadelphia meeting of the American Institute of Mining Engineers will soon be published in pamphlet form by the Institute, which has already published Dr. Dudley's and Mr. Holley's papers. We published an abstract of this discussion, necessarily brief, and many doubtless will be glad to have the full report.

Prof. R. H. Thurston's treatise on *Friction and Lubrication*, published here some two years ago, has attracted favor abroad, and a German translation, made with Professor Thurston's approval, by Mr. Friedrich Dux, of Wilhelmsstaden on the Rhine, is about to be published.

The Plans of the Northern Pacific on the Pacific Coast.

The following letter from Mr. Frederick Billings, President of the Northern Pacific, to Mr. Henry Villard, President of the Oregon Railway & Navigation Company, we copy from a paper published in Seattle, Wash. T. It will be found particularly interesting, in view of recent events:

NEW YORK, March 14, 1881.

Henry Villard, Esq., New York City:

MY DEAR SIR: I think it not best to sell my Northern Pacific stock, as suggested by you last Friday. It is not a matter of dollars and cents. The price you mentioned is probably high enough for the present, though I have so much faith in the enterprise I doubt if a better investment can be made than in the stock even at the highest price at which it has been sold. But in all these years of my connection with the Northern Pacific I have not been thinking of selling out or concerned much about the varying prices. I have been in the enterprise to stay.

The point with me is this: I have for a long period been substantially and prominently identified with the company, especially in its reorganization, its financial schemes and its forward movement. I have been its largest shareholder, have been trusted and supported by its widely scattered stockholders, and am now its President. I must do nothing that can be even construed into disloyalty to the enterprise or to those who have followed me.

To sell out my interest now and resign my office, as I should do if I parted with my stock, would, I think, be so construed, and it would be said I was ready to let the enterprise go the moment I could make a lot of money out of it. I am quite sure you will appreciate this and not wonder that I abide in the ship.

As to the other suggestion, that I should put my stock into the new company proposed for the control of the Northern Pacific and Oregon Railroad & Navigation companies, it may be that I am old-fashioned and conservative, but somehow I prefer not to go into a company likely to expand into such large proportions.

You stated frankly that you contemplated taking in also the Oregon & California roads and extending them, and that it might be well to think of securing control of the Union Pacific. The scheme is a very big one, and it may all work well enough, but I do not care to go into it. I would rather hold my Northern Pacific stock just as it is. But do not for a moment suppose that I decline to go into the new scheme because I do not wish to see the Northern Pacific Company and the Oregon Railway & Navigation Company work in harmony. The two companies should not quarrel, and I think a quarrel can be avoided.

The Northern Pacific will build its road between Portland and Kalama. The Engineer-in-Chief has been instructed to definitely locate the line. This will take a little time, as the question is involved where the Columbia River shall be crossed, and whether the road shall be on the north or south side of the river. But as soon as the line is located the work will be begun and vigorously prosecuted. With this link completed and your road finished from Wallula to Portland, there will be a continuous line to the Sound. And as you propose to give to the Northern Pacific the benefit of a constructive haul on business going over this line, I see no reason why such business cannot be arranged on a satisfactory basis. With this business so arranged it yet would be well, as we have talked, for the Northern Pacific to build within an early period as far down as the Dalles to keep out any other company; and from there it might be best, on account of the expensiveness of the road, for the Northern Pacific to run over your road to Portland, as is provided in the traffic contract.

Now, as to the branch line over the Cascade Range. The surveys are not yet completed, and I have no expectation that they will be before June. The work so far done indicates that the route will be much more practicable than has been anticipated. With the exception of a not long tunnel at the summit, I doubt if the work be as expensive as that of your road on the Columbia River from the Dalles down. However, when the surveys are finished, we shall have the exact facts, and if there is no practical route, that ends the matter. If there is, I am so certain a road will be built there by some company, I think it would be almost a crime if the Northern Pacific should lose its right to build there, and its land grant. And it certainly will, if it should not go to work and keep at work on that line. Washington Territory would ask Congress to take from the Northern Pacific its charter and land grant for the branch, if the company did not show signs of using so much of its charter, and acquiring that part of its grant; and the territory would be right in so doing. The lands are all withdrawn on the line. No title can be perfected for the railroad lands because the company does not construct its road; and the price of the alternate sections of the government is doubled because within the limits of the grant. The people would say justly if the Northern Pacific Company is not going to do anything, it must be put out of the way. And Congress would certainly put it out of the way and give the chance to some other company, and the Northern Pacific could have nothing to say against such action.

And when I think of this Cascade, or branch line, about 235 miles long, the road already built to the coal fields at Wilkeson, 31 miles from Tacoma, is completed, and that for coal and iron purposes should be extended some distance from Wilkeson right in the line of going over the Cascade Range, and that on the east side of the range a road should anyway be built up the Yakima Valley for local purposes for 75 to 100 miles right in the line of going over the range, the question comes down to this: Should the Northern Pacific give up the purpose of building the 100 miles between the point to be built to for the local business of the Yakima Valley on the east side of the mountains, and the point on the west side of the mountains to be built to for local business, provided a practicable route is found? And in solving this question it should be mentioned that this branch line would be about 150 miles shorter to the Sound than by the Columbia River, and that on its line are the coal and timber which will be required all through Eastern Oregon and Washington territory. The haul of coal would be more than double the distance by the Columbia River route than on that by the Cascade Range route.

Another matter: The Northern Pacific is chartered to go to Puget Sound both by the Columbia River and by the Cascade Range. Certainly by at least one route or the other it should go there. It will not be a complete trans-continental line from the lakes to the Pacific Ocean unless it does so. On the Sound, I believe, commerce, in time, will do its chief work, instead of on the Columbia River. The dangers and difficulties of the entering of the river and its navigation will tell against it as soon as the Sound is easily accessible from the interior.

Now, from all this you see how the thing lies in my mind. You have a road down the river. If the Northern Pacific does not build there, and there is a practicable route over the Cascade Range, it should certainly construct that branch. Not for the purpose of hurting you, but because the Northern Pacific, chartered to go to the Sound by two routes, should have a through line by at least one, and because the

Cascade Range route is the shorter one, will be a necessity for half its length or more for local purposes, and lies through coal, iron and timber fields, furnishing always freight back to the interior.

Interested as largely as you are in the development of Eastern Oregon and Washington Territory, and as you are now in the Northern Pacific Company, I think you ought to take the view that the company should do nothing that will put its route over the Cascade range in danger of being taken away. It may be best not to hurry in its construction. It may be that when constructed there should be some pooling arrangement with the river line. Such points are fair matters for consideration. But that we ought to go to work, and continue at work at a certain rate seems to be clear. The Government Auditor, Mr. French, you know, insists that we shall go on, both down the river and over the range also. He will watch us, and so will all Washington territory, which is already stirred up. The Legislature of Oregon, you are aware, has already passed resolutions urging Congress to take away the land grant on the river line because we are not building there. The Oregon Senators did not press the matter in Washington this winter, because I assured them that the Northern Pacific Company did not propose to give up any part of the road it was chartered to build.

And if we are attacked in Congress on any point, it is made the occasion to give us all sorts of trouble.

Excuse my long letter. I had no notion of any such length; but I want you to get hold of my views of the situation and the spirit in which I wish to deal with it. I recognize the fact that you are president of a corporation in which you have money and reputation.

I do not complain that you seek to develop and strengthen your enterprise. But you have a large field for development in the roads you have planned. You will have plenty of business to do in your own field. Why, virtually, put a pistol at the breast of the Northern Pacific at Ainsworth or Wallula, and say thus far and no farther? It is of this I complain. The Northern Pacific has a field in Eastern Oregon and Washington Territory to develop north of your contemplated system of roads. It will soon have its line across the continent. With a right to go to the Sound by two ways, ought it to let your company build the river line and somebody else the mountain line, and itself never go there at all? You may say you don't mean this; but this is what will happen if this company postpones work on the route to the Sound.

It will take time to build the line. Meanwhile you will have all the business. By the time it is completed and the road finished across the continent, there will be business enough for both lines, and then the two lines can be worked in harmony as if owned in common.

Appreciating the frankness with which you have met me, and hoping that we may arrive at an amicable solution of all questions relating to our respective companies.

I am very truly yours,

FREDERICK BILLINGS.

Canadian Railroads in 1879-80.

For the following summary of the report of the Chief Engineer of the Department of Railways and Canals of the Dominion of Canada we are indebted to the St. John (N. B.) Telegraph:

The blue book containing the railway statistics of Canada has at length been published; the information it furnishes, which is only down to June 30 last, is now nearly ten months old, which is a long time in a country like Canada, where railway construction is going on at the rate of from 600 to 800 miles a year. With this deduction, however, the figures are extremely interesting and suggestive, showing as they do, that of 59 states and kingdoms of the world Canada ranks as eighth in absolute mileage of railroads, and fifth in the number of miles to each inhabitant. The report informs us that the total railway mileage of the Dominion on June 30 last was:

Railways in operation	6,891.78
under construction and on which track is laid	338.85
under construction	1,076.86
Total	8,307.49

This mileage does not include 208.50 miles of the Grand Trunk and 21 miles of the Southeastern Railway situated in the United States, and erroneously included in the returns of former years. The mileage on June 30, 1879, was:

In operation	6,484.51
Less erroneously included in former reports	229.50
Under construction	6,255.01
Total	1,537.83

There was, therefore, an increase of 636.17 miles in operation, and a decrease of 121.52 miles under construction during the year.

The length of line of various gauges is:

Railways completed (track laid)	Gauge	Miles.
" " "	5 ft. 6 in.	289.04
" " "	4 " 8 1/2 "	6,254.79
" " "	3 " 6 "	686.00
Total		7,229.83

The nominal capital on June 30, 1880, was as follows:

Ordinary share capital	\$119,506,036.37
Preference do.	70,450,140.87
Bonded debt	80,661,315.89

Total

\$270,617,493.13

Amount of aid from—

Dominion Government	\$74,245,165.44
Ontario	2,982,037.02
Quebec	11,089,419.58
New Bruns'k	2,749,000.00
Nova Scot'k	818,750.00
Municipalities	8,313,944.63
Other sources	235,382.62

Total

\$371,051,192.42

The nominal capital of the railways at the close of the previous year was:

Ordinary share capital	\$123,615,505.60
Preference do.	69,059,187.87
Bonded debt	\$1,151,627.93
Government and municipal loans and bonuses	83,210,520.24
Other sources	49,136.77

Total

\$362,068,138.41

The capital statement for the past year does not include the sum of \$10,653,736.33, the paid up capital of railways in American territory, owned and operated by the Grand Trunk, and erroneously included in the returns of former years.

There is therefore virtually the large increase of \$19,618,790.84 in the capital of the railways.

The large increase in government aid is chiefly due to the

expenditure on the Canadian Pacific Railway and the purchase of the Riviere du Loup section of the Intercolonial, as well as to other extensions and improvements on the latter road.

The capital per mile of railway, completed and under construction, is therefore:

Ordinary share capital	\$14,398
Preference do	8,463
Bonded debt	9,715
Government and municipal aid	12,608
Other sources	28

28

\$45,207

The traffic figures are as follows:

1879-80.	1878-79.	Increase.
Train mileage	22,427,440	20,931,689
Passengers carried	10,363,634	6,523,816
Tons freight carried	9,938,858	8,328,810

18.17

All the roads show an increase in passenger traffic for the year except the Great Western, which shows 574 decrease, and the Intercolonial a decrease of 58,618. All railways show an increase in freight, the Grand Trunk having the largest. The total increase in both passengers and freight for the year was \$3,611,473.50.

The average earnings per mile of all railways were \$3,405, an increase over that of the preceding year of \$332.

Operating expenses amounted to \$16,188,282.46, an increase over the previous year of \$650,973.49. Thus while the earnings per mile were greater by \$332 in 1879-80 than in 1878-79, the operating expenses were less by \$60 per mile.

The net profits compare thus:

1879-80.	1878-79.	Increase.
Receipts	\$23,561,447.60	\$19,925,066.27
Expenses	16,840,705.43	16,188,282.46

652,422.97

Net profit... \$6,720,872.17 \$3,726,783.81 \$2,984,088.36

The percentage of expenses to earnings was 71.47 in 1879-80 against 81.25 in 1878-79. The share and bonded liability per mile is \$33,876. The capital liability for shares and bonds of the railways in operation is therefore \$233,439.516. The net earnings of the year would thus be equal to the payment of a dividend of 2.87 per cent. upon the share and bonded liability, leaving nothing for Government and municipal aid.

The number of persons killed and injured during the years 1879-80 was as follows:

Killed.	Injured.	Total.
Passengers	10	4
Employees	27	82
Others	50	16
	87	102
	189	

There was one more passenger killed in 1879-80 than in the preceding year, but a decrease of 10 in the number of employees and of 11 in the number of persons neither passengers nor employees. The total decrease of killed was 20, and the increase in the injured was 36.

The proportion of passengers killed to the number carried is 1 in 1,053,251, against 1 in 724,869 in 1878-79. The proportion injured was 1 to 2,633,078, against 1 to 326,190 in the previous year.

General Railroad News.

MEETINGS AND ANNOUNCEMENTS.

Meetings.

Meetings will be held as follows:

Canada Southern, annual meeting, in St. Thomas, Ont., June 1. Transfer books close April 30.

New York Central & Hudson River, annual meeting, in Albany, N. Y., June 1. Transfer books close April 30.

New York & Harlem, annual meeting, at the Grand Central Depot, New York, May 17.

Rochester & Pittsburgh, special meeting, at the office, No. 11 Pine street, New York, May 18, at 2 p. m., to vote on an increase of stock.

Pittsburgh, Ft. Wayne & Chicago, annual meeting, at the office in Pittsburgh, Pa., May 18, at noon.

Technical Conventions.

The *Master Mechanics' Association* will hold its fourteenth annual convention in Providence, R. I., beginning Tuesday, June 14. Headquarters for members will be at Narragansett Hotel.

The *Master Car-Builders' Association* will hold its fifteenth annual convention in the city of New York, beginning June 14.

The *American Society of Civil Engineers* will hold its thirteenth annual convention in Montreal, Canada, beginning June 15.

The *American Society of Mechanical Engineers* will hold its second regular meeting in Hartford, Conn., beginning May 4.

Dividends.

Dividends have been declared as follows:

Boston & Maine, 4 per cent., semi-annual, payable May 16.

Concord, 5 per cent., semi-annual, payable May 2.

Manchester & Lawrence, 5 per cent., semi-annual, payable May 2.

Atchison, Topeka & Santa Fe, 2 per cent., quarterly, payable May 16.

Boston & Providence, 4 per cent., semi-annual, payable April 30.

Foreclosure Sales.

The sale of the *Petersburg* road, which was to have taken place April 20, at Petersburg, Va., has been postponed until May 10, by order of the United States Circuit Court.

Joint Executive Committee Meeting.

The following is the call issued for the meeting of the Joint Executive Committee, held Wednesday, April 27.

A meeting of the Joint Executive Committee will be held on Wednesday, April 27, 1881, at 11 o'clock, a. m., at the office of the Committee, No. 346 Broadway, New York, to consider and take action upon the following subjects:

"1st. Revision of classification.

"2d. Revision of Percentage Table.

"3d. Report of the Committee on Competition of the Mississippi River Route.

"These are the only subjects upon which the Committee as a whole have to act.

"The following subjects will be considered and acted upon only by the parties immediately interested represented on the following committees:

"4th. The *Chicago Committee* will take into consideration the settlement of the various questions that have been raised regarding the division of dead freight and live stock traffic from Chicago.

"5th. Division of the traffic of the Michigan Central Railroad between the three Canada roads.

"6th. *St. Louis Committee*—To settle all open questions regarding the division of dead freight and live stock from St. Louis.

"7th. Sub-division of the traffic of the initial roads at St. Louis between their eastern connecting roads, as called for by miscellaneous circulars Nos. 34 and 45.

"8th. *Cincinnati Committee*—The settlement of all questions relative to the division of the live stock traffic from Cincinnati.

"9th. Sub-division of the traffic of the initial roads at Cincinnati between their eastern connecting roads, as called for by miscellaneous circulars Nos. 36 and 42.

"10th. *Indianapolis Committee*—The sub-division of the traffic of the initial roads at Indianapolis between their eastern connecting roads, as called for by miscellaneous circulars Nos. 37 and 44.

"11th. *Louisville Committee*—The sub-division of the traffic of the initial roads at Louisville between their eastern connecting roads, as called for by miscellaneous circulars Nos. 35 and 43.

"12th. *Peoria Committee*—The settlement of all open questions regarding the division of traffic from Peoria, and the sub-division of the traffic of the initial roads at Peoria between their eastern connecting roads, as called for by miscellaneous circulars Nos. 38 and 41.

"13th. Agreement upon rail rates from Buffalo and other lake ports to Western points on traffic coming via canal or lake.

"14th. Agreement upon rail rates from lake ports to eastern points on freight brought to these ports via lake.

"Representatives of the companies interested in the above subjects are respectfully requested to be present, and bring with them the statistics necessary to the proper consideration of these subjects with a view of taking final action.

"It is desired that the joint agents will also attend the meeting.

ALBERT FINK, Chairman.

C. W. BULLEN, Assistant Secretary.

American Society of Mechanical Engineers.

The opening session of the first regular meeting is announced to begin at 8 p. m., Wednesday, May 4, in the Common Council Chamber of the City Hall, Hartford, Thursday, besides morning and afternoon sessions there will be a subscription dinner at 7 p. m. at Merrell's restaurant, Friday will be devoted chiefly to visiting places of professional interest to which members have been invited; carriages and escorts will be provided. The closing session will be held in the Common Council Chamber at 7:30 p. m., that day. The price of tickets to the dinner is \$7; members purposing to attend should notify the Secretary at the opening session.

Headquarters for the society are at the United States Hotel.

ELECTIONS AND APPOINTMENTS.

Alabama Central.—The following circular from the President, Mr. W. L. Lanier, is dated Selma, Ala., April 14:

"1. Mr. John F. O'Brien is hereby appointed General Superintendent of the Alabama Central Railroad, and will be obeyed and respected accordingly.

"2. Mr. Jas. R. Ogden is appointed General Freight and Passenger Agent, with headquarters at Knoxville, Tenn.

"3. Mr. Ray Knight is appointed Assistant Freight and Passenger Agent, with office at Selma, Ala.

"4. Mr. John M. Bridges will continue with the road as Division Superintendent, with office at Selma, Ala."

Messrs. O'Brien and Ogden are also officers of the East Tennessee, Virginia & Georgia road.

Atchison, Topeka & Santa Fe.—At the annual meeting in Topeka, April 22, the following directors were chosen: S. Severy, C. K. Holliday, Topeka, Kan.; B. F. Stringfellow, Atchison, Kan.; S. A. Kent, Chicago; J. T. Burr, B. C. Cheney, T. J. Cooledge, G. A. Gardner, W. Powell, Mason, C. J. Paine, C. W. Prince, Alden Speare, S. L. Thorndyke, Boston. Subsequently the following officers were elected: T. J. Cooledge, President; W. B. Strong, Vice-President and General Manager; S. L. Thorndyke, Comptroller; E. W. Wilder, Secretary and Treasurer; G. L. Goodwin, Assistant Secretary and Treasurer; J. P. Whitehead, Auditor.

Atlantic & Pacific.—Mr. J. S. Clements has been appointed Chief Engineer. He has been connected with the Southern Pacific for several years.

Austin & Northwestern.—The officers of this company are: President, J. A. Rhomberg, Dubuque, Ia.; Vice-President, M. A. Taylor, Austin, Tex.; Secretary and Treasurer, Francis B. Forster, Austin.

Chelsea Beach.—This company has been organized by the election of the following: Directors, W. B. Bacon, John Cummings, G. P. King, George S. Morison, Richard Olney, E. B. Phillips, Alfred P. Rockwell, J. G. Rogers, S. J. Young; Clerk, F. L. Amory; Treasurer, N. G. Chapin. The company is controlled by the Eastern Railroad Company.

Chicago & West Michigan.—At the annual meeting in Muskegon, Mich., April 20, the following directors were elected: N. Thayer, H. H. Hunnewell, C. F. Adams, Jr., N. Thayer, Jr., George Shattuck, J. Harvey, C. Merriam, F. Shaw, George C. Kimball.

Mr. H. L. Brown has been appointed General Freight Agent of this road.

Columbus & Hocking Valley.—A dispatch from Columbus, O., says that Mr. George R. Carr is to be made General Superintendent of this road, the Columbus & Toledo, and the Ohio & West Virginia, in place of Gen. Orland Smith, made Vice-President and General Manager. Mr. W. H. Lott will succeed Mr. Carr as Assistant Superintendent, and Mr. J. F. Anthony will succeed Mr. Lott as General Agent at Columbus.

East Tennessee, Virginia & Georgia.—The following circular from General Superintendent John F. O'Brien is dated Knoxville,

Ft. Scott & Topeka.—The officers of this new company are: President, F. W. Giles, Topeka, Kan.; Vice-President and General Manager, T. L. Wilson, Ft. Scott, Kan.; Secretary, J. T. Bronson; Treasurer, J. P. Robins.

Florida Southern.—Mr. John R. Hall is President, and Colonel Candler Treasurer.

Louisville, New Albany & Corydon.—The directors of this new company are: Thomas McGrain, S. M. Stockslager, Samuel J. Wright, Corydon, Ind.; George Lyman, New Albany, Ind.; St. John Boyle, Charles Godshaw, Bennett H. Young, Louisville.

Mt. Pleasant & Broadford.—Mr. J. B. Washington has been chosen President, in place of C. Donnelly, resigned.

New York & New England.—Mr. J. C. Rawn has been appointed Superintendent of the Western Division, in place of J. T. McManus, resigned. Mr. F. C. Hills is appointed Superintendent of Track, Bridges and Buildings, to succeed Mr. Rawn.

Northern Pacific, Fergus & Black Hills.—The officers are: B. S. Henning, President; G. V. Sims, Secretary. Office at No. 23 Fifth avenue, New York.

Ohio & West Virginia.—At the annual meeting in Columbus, O., April 14, the following directors were chosen: George C. Beaman, Wm. V. Deshler, D. J. Gray, W. M. Greene, J. A. Hamilton, P. W. Huntington, George McQuigg, Henry Miller, George Parrott, Orland Smith, Samuel Thomas, C. C. Walcott, J. A. Wilcox. The board elected M. M. Greene, President; Orland Smith, Vice-President; W. M. Greene, Secretary and Treasurer. The road is controlled by the Columbus & Hocking Valley.

Painesville & Youngstown.—Mr. George M. Patten has been chosen General Superintendent, succeeding Miles R. Martin, late General Manager. Mr. Patten was formerly on the Maine Central.

Philadelphia & Erie.—Mr. J. N. DuBarry has been chosen President, in place of Robert Thompson, deceased.

Pittsburgh & Connellsburg.—The directors have chosen J. B. Washington, Treasurer, in place of C. Donnelly, resigned. Also George A. Berry director, in place of Mr. Donnelly.

Rhinebeck & Connecticut.—Mr. Richard B. Jones has been appointed General Freight and Ticket Agent, in place of C. W. Bullen, resigned to accept a position as Secretary of the Joint Executive Committee.

Santa Rosa & Sonoma.—This company has been organized at Santa Rosa, Cal., with the following directors: A. A. Bean, David Burris, E. T. Farmer, F. H. Hanman, George P. Noonan, James B. Rue, W. G. M. Wright.

Sinaloa & Durango.—Mr. E. P. North, of New York, has been appointed Chief Engineer and General Superintendent, and will start for Mexico to begin the location and construction of the road in a few days. The construction will begin at Altata, on the Gulf of California just above its mouth and about the 24th parallel—that is, a little further south than the mouth of the Rio Grande, and about 250 miles southeast of Guaymas, and about 150 northwest of Mazatlan.

Texas & St. Louis.—At the annual meeting in Tyler, April 27, the following directors were chosen: C. M. Seely, Waco, Tex.; J. Lowe, Gilmer, Tex.; R. Bonner, Wm. Gavett, Tyler, Tex.; Logan H. Roots, Little Rock, Ark.; J. W. Paramore, Wm. Senter, J. L. Sloss, St. Louis. The board re-elected J. W. Paramore, President; Wm. Senter, Vice-President; J. W. Brown, General Superintendent; C. T. Stephens, Chief Engineer.

Union Pacific.—The President of the United States has named the following government directors for the ensuing year: George W. Frost, Omaha, Neb.; R. H. Baker, Racine, Wis.; Charles B. Peck, Port Huron, Mich.; S. T. Everett, Cleveland, O.; A. Kountze, New York. Mr. Peck is General Manager of the Chicago & Grand Trunk; Mr. Everett is Vice-President of the Valley Railroad Company.

Valley of Ohio.—At the annual meeting in Cleveland, April 20, Henry B. Payne, H. M. Flagler and Lewis V. Backus were re-elected directors for three years. The board re-elected J. H. Wade, President; S. T. Everett, Vice-President and Treasurer; W. P. Porter, Secretary and Auditor; Sam. Briggs, Superintendent.

Washington & Hope.—This company has elected the following officers: President, W. H. Carruth; Vice-President, V. Alderman; directors, J. D. Beardsley, J. D. Conway, W. T. Hart, J. K. Jones, H. W. Holman, Thomas H. Simms, A. B. Williams, R. D. Williams; Superintendent, J. D. Beardsley, office at Washington, Arkansas.

Worcester & Shrewsbury.—Dr. Charles H. Perry has been chosen President, in place of A. G. Bullock, resigned. Mr. James M. Drennan has been chosen a director in place of Rockwood Hoar, resigned.

PERSONAL.

—Mr. A. G. Bullock has resigned his position as President of the Worcester & Shrewsbury Company.

—Mr. W. E. Cooper, late Master Mechanic of the Dayton & Southeastern road, has resigned to accept position in the Brooks Locomotive Works.

—Mr. R. C. Meldrum, of Chicago, long General Western Freight Agent of the Pittsburgh, Ft. Wayne & Chicago road, died April 21 at Jacksonville, Fla., where he had gone for the benefit of his health.

—Mr. Wm. C. Longstreth died in Philadelphia, April 25, aged 61 years. He was for many years President of the Williamsport & Elmira Railroad Company and Vice-President of the Provident Life & Trust Company, of Philadelphia.

—Mr. Thomas Hogg, who died in Danbury, O., April 21, aged 73 years, went out from the Rogers Locomotive Works in Paterson in 1837 with the "Sandusky," the first locomotive sent west of the Alleghenies. He remained with it on the Mad River & Lake Erie road as engineer and afterwards as Master Mechanic until 1846, when he was appointed Master Mechanic of the Sandusky, Mansfield & Newark road, now the Lake Erie Division of the Baltimore & Ohio. This position he held until 1867, when he retired to a farm at Danbury in Ottawa County, O., where he lived quietly until his death last week.

—A party arrived in New York, April 26, on the steamer *Gallia* from Liverpool, who come to this country for the purpose of inspecting some of its railroads and comparing their systems of management with those of English companies. The party consists of the Duke of Sutherland, who is largely interested in railroad property; his son the Marquis of Stafford; J. P. Bickersteth, Deputy Chairman of the London & Northwestern; George Crossfield, T. Knowles and O. L. Stephen, directors; Henry Crossfield, Auditor, and George P. Neale, Superintendent, of the same company, and finally Dr. W. H. Russell, a well-known newspaper correspondent.

TRAFFIC AND EARNINGS.

Railroad Earnings.

Earnings for various periods are reported as follows:

Three months ending March 31:		1881.	1880.	Inc. or Dec.	P. c.
Central Pacific...	\$4,645,907	\$3,644,539	I.	\$1,001,368	27.8
Cin., Ind., St. L. & Chi.	517,451	520,458	D.	9,007	1.7
Mem., Pad. & No.	57,649	54,038	I.	3,611	6.6
Northern Central	1,221,719	1,080,679	I.	141,040	13.1
Net earnings...	740,704	378,254	I.	362,450	95.9
Pennsylvania...	10,129,134	9,306,314	I.	822,820	8.8
Net earnings...	4,163,991	4,109,528	I.	54,403	1.3

Month of March:

Central Pacific...	\$1,643,000	\$1,373,438	I.	269,582	12.0
Cin., Ind., St. L. & Chi.	185,004	108,220	D.	13,216	6.5
Mem., Pad. & No.	21,216	17,945	I.	3,271	18.2
Northern Central	452,905	415,323	I.	37,582	9.0
Pennsylvania...	3,844,304	3,278,186	I.	566,118	17.2
Net earnings...	1,789,226	1,511,248	I.	287,978	19.1

First week in April:

Gal., Har. & San-Antonio...	\$19,437	\$17,517	I.	\$1,920	10.9
Second week in April:					
Chi. & Eastern Ill. & So. & So.	\$31,610	\$19,588	I.	\$12,022	61.3
St. L., Iron Mt. & So.	146,400	109,408	I.	36,992	34.0
Third week in April:					
Northern Pacific...	\$55,163	\$43,417	I.	\$11,746	27.0
Week ending April 15:					
Great Western...	\$114,150	\$90,660	I.	\$23,490	25.8
Week ending April 16:					
Chi. & Grand Trk. Grand Trunk...	\$33,502	\$21,173	I.	\$12,329	58.7
	221,116	196,418	I.	24,698	12.5

Grain Movement.

For the week ending April 16 receipts and shipments of grain of all kinds at the eight reporting Northwestern markets and receipts at the seven Atlantic ports have been, in bushels, for the past eight years:

Year.	Northwestern shipments—			Atlantic
	Total.	By rail.	P. c. by rail.	receipts.
1874...	3,164,570	4,638,359	2,399,183	34.7
1875...	2,667,509	1,280,426	1,119,558	87.4
1876...	2,009,581	2,867,642	1,618,449	56.4
1877...	2,517,399	2,286,531	1,881,480	84.9
1878...	4,030,622	3,502,616	759,316	21.1
1879...	2,503,486	3,256,099	5,086,829	
1880...	3,064,907	3,805,446	1,492,295	39.2
1881...	3,765,907	4,110,869	3,373,580	81.2

Thus the receipts of the Northwestern markets were larger than in the corresponding week of any previous year, except 1878. They are but a trifle larger than the week before, however, and smaller than two weeks before. The shipments of these markets were larger than in the corresponding week of any previous year, though in most of these years lake navigation was open. Doubtless, they were stimulated somewhat by the reduction in rates which was general that week. The shipments not by rail must have been those by the Mississippi, which heretofore have usually been included in the rail shipments. The total amount of shipments is one-half greater than the week before, since navigation closed Nov. 21 last. The Atlantic receipts are smaller than in the corresponding weeks of 1880 and 1879, and though nearly a quarter larger than in the previous week, were much smaller than in the last two weeks of March.

Of the Northwestern receipts for the week ending April 16, St. Louis had 29.5 per cent, Chicago 28.5, Peoria 14.4, Toledo 13.8, Milwaukee 6.3, Detroit 5.2, and Cleveland 2.3 per cent. St. Louis' receipts are the largest of the year; Chicago's were exceeded every week in January and twice in March.

Of the Atlantic receipts for the week ending April 16, New York had 47.7 per cent, New Orleans 18.8, Baltimore 13.9, Boston 13.2, Philadelphia 7.1, Portland 1.2, and Montreal 0.1 per cent. New York had had so large a quantity but once before this year, and so large a percentage not since last November, when canal deliveries were large.

Exports from Atlantic ports for five successive weeks have been:

Week ending—					
Apr. 20.	Apr. 13.	Apr. 6.	March 30.	March 23.	
Flour, bbls...	138,759	88,524	120,665	129,789	108,896
Grain, bush...	3,528,623	4,009,384	4,422,442	4,316,444	3,786,663

During the past four weeks the exports of flour were about the same as for the preceding four weeks, but the exports of grain were 16,376,898 bushels, against 14,237,208. Thus, though there has been recently some decrease in the weekly grain exports, they are still considerably greater than a month ago and earlier.

For the week ending April 22, the receipts at the four leading Atlantic ports were 4,297,696 bushels this year, against 3,629,943 last year. This year New York's receipts were nearly 60 per cent. of the whole and more than a million bushels greater than last year; there is a large decrease at Philadelphia and a small increase at Boston and Baltimore.

For the same week ending April 22, receipts and shipments at Chicago and Milwaukee were:

	Receipts—		Shipments—		
	1881.	1880.	1881.	1880.	
Chicago...	1,202,243	933,026	2,175,215	1,813,187	
Milwaukee...	221,422	136,400	238,890	185,000	

This shows an increase of 26.1 per cent. in Chicago receipts and of more than 60 per cent. in the Milwaukee receipts, and an increase of 20 per cent. in Chicago shipments and of 28.5 per cent. in Milwaukee shipments. The increase in shipments is remarkable when we consider that lake navigation was open last year during the week, but not this, and it leads to the conviction that most of the grain must have been moved at the 25-cent rate that was officially advanced at the beginning of the week to 30 cents, though engagements were outstanding at 25 cents, which probably were made to cover pretty much all the shipments of the week.

Coal Movement.

Coal tonnages for the week ending April 16 are reported as follows:

	1881.	1880.	Inc. or Dec.	P. c.
Anthracite...	408,448	610,023	D. 201,575	33.0
Semi-bituminous...	104,518	81,105	I. 23,411	28.9
Bituminous, Penna...	46,468	68,106	D. 21,640	31.8
Coke, Pa.	51,233	46,250	I. 4,983	10.8

Anthracite trade continues fair. Semi-bituminous and bituminous coals are active, but prices very low. The different regions are getting into a very sharp competition for the trade at tide-water.

Chicago Board of Trade Protest against Advancing Rates without due Notice.

The following resolution was passed April 26:

"The Board of Directors of the Chicago Board of Trade having heretofore withheld an expression of opinion upon the merits or demerits of the organized system of pooling railway earnings between this city and the East, has also refrained from criticism upon what is known as the Joint Executive Committee as managers of said railway pool; but it now declares that the action of the said Joint Executive Committee on the 16th inst., in advancing railway rates to the East 5 cents per 100 lbs. to take effect April 18, without giving the usual ten days' notice, was in violation of the understanding between said Executive Committee and the public, and a positive breach of faith toward the shipping trade. This board regards with alarm such violation of the policy which had previously been announced to the public by the authority of said Committee, as an arbitrary abuse of power, and as calculated to visit undeserved and unavoidable hardship and loss upon the general trade of the West, whenever the whim of the secret conclave shall choose to exact it. The action of said Joint Committee on the 16th inst. was such an act of treachery and tyranny as invites violence in Europe, and should invite in this country the united and untiring effort of every citizen toward such commercial, political and legal relief as will ultimately deliver the shipping industries of the West from the control of such unworthy power as now disregards its agreements and resorts to equivocation in labored explanations of its representatives in extenuation of its late unwarrantable action."

Lake Michigan and Mississippi River Rates.

The tariffs of the Chicago, Milwaukee & St. Paul and the Chicago & Northwestern roads which went into effect April 11, and probably will last till winter or late in the fall, give the following rates between Chicago, Milwaukee and Racine and the undernamed points, in cents per 100 lbs., where not otherwise named:

Merchandise Class.	Special Car-load Class.				Coal Oil bbls.				
	1.	2.	3.	4.		A.	B.	C.	D.
1. Clinton, Ia.	50	40	35	25	25	20	16	14	60
Dubuque...	50	40	35	25	25	22½	17½	15	60
2. McGregor...	60	45	35	25	30	25	20	18	70
3. St. Paul...	60	45	35	25	30	25	22½	20	70
Per 100 lbs.									
Car-load— Hogs									
Wheat and Other Lum.	17.4	13.6	11	35	\$40	\$35	\$30	\$25	\$30
Flour.	20	20	15	40	50	45	40	35	30
Dubuque...	20	16	—	40	50	45	40	35	30
McGregor...	—	—	20	—	60	50	45	40	35
St. Paul...	—	—	—	—	—	—	—	—	—

1. Also Fulton, Ill., and Lyons and Sabula, Ia.
2. Also North McGregor, Prairie du Chien, La Crosse and Winona.
3. Also Minneapolis, Stillwater and Hudson.

The Chicago, Milwaukee & St. Paul publishes this tariff in an unusual form, giving these rates, which are both west-bound and east-bound, in one table, those in our first table (which include freight that moves westward almost exclusively) being to the right of the names of the river towns, and those of our second table to the left of it. The latter includes all the principal east-bound freights, but also lumber and salt, which are exclusively west-bound. This is, in many respects, convenient, but it makes the rates on everything the same in both directions, which would not be desirable on many lines. The tariff does not read from A to B such and such rates, but between A and B.

It will be observed that from Clinton the rate on corn is made 3.8 cents, or more than 20 per cent, lower than the wheat rate. This is in accordance with the method of the roads in the Southwestern Association, which charge 5 cents per 100 lbs. more for wheat than for other grains from Missouri River points to Chicago. The rate of 20 cents on wheat from points as far north as Dubuque is, we believe, the one that has prevailed for several years from Minneapolis, etc., on the large shipments of flour and wheat thence. The distance from Minneapolis is 419 miles to Chicago and 384 to Milwaukee by the shortest routes.

RAILROAD LAW.
Power to Exempt Lands from Taxation.

A dispatch from Madison, Wis., April 19, says: "One of the most important decisions from the Supreme Court for many years was rendered by Justice Cassedy this morning. The point was whether a legislature has the right to exempt lands belonging to railroad companies from taxation. The case was that of the Wisconsin Central Railroad Co. against Taylor County. The opinion is a long and exhaustive document of 96 pages, and authorities and decisions are given from nearly every state in the Union. In a large majority of state constitutions other than of Wisconsin there are no inhibitions in respect to exempting property from taxation, and in many cases the Legislature is given discretionary power to prescribe what property shall be taxed and what not. Justice Cassedy, with the concurrence of the entire Court except Justice Orton, construed the clause in the Wisconsin constitution in this way: 'The rule of taxation shall be uniform upon such property as the Legislature shall prescribe.' The exact wording of the constitution is: 'The rule of taxation shall be uniform and taxes shall be levied upon such property as the Legislature shall prescribe.' The Court holds that the word 'uniform' applies only to such property as the Legislature, in its discretion, may declare shall be taxed, and as a sequence the Legislature has full power to exempt the property of any party and class from taxation. The opinion is made to endorse the decision of the Court in the case of the Milwaukee & Mississippi Railroad Company against the board of supervisors of Waukesha County, in which substantially the same doctrine as above was affirmed. That decision was in a great measure abrogated by the decisions which are disapproved by the one filed to-day, and the Court thus adheres to its old record. The decision of the Circuit Court of Taylor County in favor of the railroad company, and restraining the officers from levying and collecting taxes on the lands of the Wisconsin Central Company exempt from taxation, is affirmed. Justice Orton filed a dissenting opinion, in which he sharply objected to Justice Cassedy's theory. He insisted that the manifest intention of the constitution was to prevent the Legislature from showing favoritism or discrimination. The constitution could not be tortured into any such construction; if so, the Legislature may exempt a number of taxpayers, or an amount of property only limited by the total population, or the aggregate amount of property—an idea that would be ridiculous were it not outrageously pernicious."

Railroad Taxation in Tennessee.

The following is the law governing the taxation of railroads in Tennessee, as amended by the Legislature at its recent session:

Section 1. Be it enacted by the General Assembly of the

state of Tennessee, that each railroad company owning and operating a railroad in the state shall, on or before the first day of May each year, make out and file a complete schedule of all its property, as required in section 1 of an act passed 20th of March, 1875, declaring the mode and manner of valuing the property of railroad companies for taxation; that, in addition to the requirements of section 1 of said act, each company shall include as a part of its schedule the costs as near as possible of the construction of its road and of the equipments used in its operation; and where any company now owns or operates a road which it purchased or leased, it may include, in addition to costs of construction, the amount paid for same under purchase or lease; also the amount of dividends declared in its stock annually or semi-annually, as the case may be, and the amount and value of its stock on the market for the year preceding the filing of the schedule. Said schedule shall also contain a full report of the outstanding indebtedness of the company, together with a statement of the property mortgaged for the security of said bonds and the average annual value of the bonds of the company on the market for the year preceding the making of the schedule; provided, that the assessors of railroad companies may, if they think it onerous, impracticable or unnecessary in any case to require a statement of their cost of equipment and construction, they may excuse any company from a strict compliance with the requirement.

Sec. 2. Be it further enacted, that the railroad assessors, in determining the value of the property of any railroad company, as directed in sections 3 of said act of March 20, 1875, shall look to the schedules filed under section 1 of this act; provided, that nothing herein shall be construed as preventing or prohibiting the assessors from taking any other proof that they deem necessary to enable them to reach the true and proper taxable value of the railroad property of the state; provided further, that nothing in this act shall be so construed as to authorize the assessors to deduct the amount of bonded or other indebtedness from the value of the property of said companies, but the same, together with the other items of schedule, may be looked to alone for the purpose of arriving at the value of property owned by said companies.

Sec. 3. Be it further enacted, that if any railroad company fail or refuse to file the schedule as required by the first section of this act, the assessors are hereby authorized to proceed as directed in section 4 of the act of March 20, 1875, and shall add 10 per cent. to the taxes of said company so failing and refusing; said assessors in such cases may look to the mortgages of record in the various counties in the state or states through which said road runs to ascertain amount of bonded indebtedness and security for the same of any company failing to comply with first section of this act.

Sec. 4. Be it further enacted that any railroad company, owning or operating a railroad in this state, which fails or refuses to make out and fill said schedule as required by this act on or before said first of May of each year, shall forfeit and be liable to a penalty of \$400 for each day after said ten days that said company shall delay or refuse to make out and file said schedule as required by this bill, and it shall be the duty of the Attorney-General of the state to sue for and collect the same before any court of competent jurisdiction in the same manner as any other debt, penalty or forfeiture is now collected.

Sec. 5. Be it further enacted, that this act take effect from and after its passage, the public welfare requiring it.

Passed March 31, 1881.

Purchase of Branch Roads in Ohio.

An amendment to the general law, just passed by the Legislature of Ohio, authorizes railroad companies to issue bonds, debentures or notes for the purpose of buying and completing branch roads not exceeding 10 miles in length, either completed or in course of construction. Such bonds, debentures or notes must not bear more than 7 per cent. interest and must be authorized by a vote of the stockholders.

The special object of this amendment, it is understood, is to permit the Cleveland, Columbus, Cincinnati & Indianapolis Company to buy the Mt. Gilead Short Line road and to issue bonds therefor.

Authority to Deliver Freight to Connecting Road.

The case of Baldwin vs. the Chicago, Rock Island & Pacific Co. has just been decided in Van Buren County, in Judge Travers' Court, in favor of the defendant. In April last the plaintiff shipped a car load of stock from Independence, consigned to himself at Keokuk, but which was in fact intended to go to Chicago over the Toledo, Peoria & Warsaw road. At the same time he wrote to the agent of the road at Keokuk, advising him of the shipment and giving directions in regard to the stock. On the same sheet he also wrote in relation to the rate he was paying for transportation, which was, it is supposed, considerable below the regular rate from Keokuk. The Toledo, Peoria & Warsaw agent, on the arrival of the stock at Keokuk, applied to the Rock Island agent for it, saying he had a letter from Baldwin in regard to it. On being requested to exhibit it, he refused, saying it contained private matter which he did not propose to let the Rock Island agent see. Thereupon the agent of the Rock Island Company declined to deliver the stock, and it was delayed a night and day at Keokuk, awaiting additional orders for delivery to the Toledo, Peoria & Warsaw. Baldwin sued the Rock Island Company for damages occasioned by the shrinkage of the stock, the expense incurred for feed, etc., and loss from a decline in the market. The defendant's attorney claimed that as their company would have been responsible for damages in case of a wrong delivery to an unauthorized person, notwithstanding they might have good reason to believe him authorized, they therefore had a right to demand at least the exhibition of the authority, and that being refused they were not bound to deliver, nor responsible for the damages caused by the delay.

This position was sustained by the Court in the instructions to the jury, but the plaintiff also claimed that the defendant's agents had been previously instructed by him to deliver all his stock to the Toledo, Peoria & Warsaw, and had done so without other orders, but this was disputed, and was the principal contention in the case, which lasted over two days, the jury finally returning a verdict for the defendant on all the questions involved.—Keokuk (Ia.) Gate City, April 20.

The Massachusetts Law on Color-Blindness.

An act entitled "an act relative to the employment by railroad companies of persons affected with defective sight or color-blindness" passed the Massachusetts Legislature and was approved by the Governor April 11. It reads as follows:

"Sec. 1. No railroad company shall employ or keep in its employment any person in a position which requires him to distinguish form or color signals, unless such person within two years next preceding has been examined for color-blindness or other defective sight, by some competent person employed and paid by the railroad company, and has received a certificate that he is not disqualified for such position by color-blindness or other defective sight. Every railroad com-

pany shall require such employé to be re-examined at least once within every two years, at the expense of the railroad company.

"Sec. 2. A railroad company shall be liable to a fine of one hundred dollars for each violation of the preceding section.

"Sec. 3. This act shall take effect on the first day of July next."

THE SCRAP HEAP.
Locomotive Building.

The Danforth Locomotive Works, at Paterson, N. J., lately shipped the last of a lot of mogul freight engines to the Cincinnati Southern road. The shops are full of work.

Fleming & Sons, at St. John, N. B., have turned out seven of an order of nine freight locomotives for the Intercolonial road. They have taken another contract to build seven passenger engines for the same road.

The Rogers Locomotive Works, at Paterson, N. J., have been shipping engines to the Alabama Great Southern and the Wabash, St. Louis & Pacific roads.

The Canadian Locomotive Co. has organized with the following officers: President, George Kirkpatrick, Kingston; Vice-President, T. McGreevy, Quebec; Secretary, J. W. Pyke, Kingston. The company has bought the property of the Canada Engine & Machinery Co., at Kingston, Ont., and will enlarge the works to a capacity of 60 locomotives a year.

The report is renewed that New York parties have bought the old Camden & Amboy shops at Bordentown, N. J., and will establish locomotive works there. The shops have not been used for several years.

Car Notes.

The Indiana Car Co., at Cambridge City, Ind., is building 200 box cars, to carry 20 tons each, for the Cincinnati, Indianapolis, St. Louis & Chicago road.

The Michigan Car Co., at Detroit, is building 500 box and 500 flat cars for the Chicago, Milwaukee & St. Paul road. The shops are now turning out 25 cars a day.

The New York, New Haven & Hartford shops, in Hartford, Conn., have lately completed the last of a lot of 400 box cars for the road.

The Western North Carolina new shops, in Salisbury, N. C., are nearly completed. As soon as they are ready they will begin building new freight cars for the road.

The Lebanon Manufacturing Co. is building an addition to its car shops at Lebanon, Pa., and laying new tracks in the yard.

The Patten Car Works, at Bath, Me., are, it is said, to be started up soon by parties who are now negotiating for the purchase of the property.

Allison & Sons, in Philadelphia, are putting up another addition to their car shops.

Mr. Josiah Fowler is adding to his machine shop at St. John, N. B., a building to be used for the manufacture of car springs. He has already secured contracts for the New Brunswick and the Intercolonial roads.

The Industrial Works, at Bay City, Mich., are building steam shovel and derrick cars of their pattern for the Minneapolis & St. Louis, the Michigan Central, the New York & New England and the Providence & Worcester roads. One has been in use the past season on the Detroit, Lansing & Northern.

Bridge Notes.

The Morse Bridge Works, of Youngstown, O., are building a railroad bridge 204 ft. span for the Connecticut Western, one of 175 ft. span for the New York, Pennsylvania & Ohio road and a highway bridge 220 ft. span at Youngstown, besides other work. The shops are to be enlarged by a two-story building 30 by 40 ft. for a pattern and template shop.

Mr. Grant Wilkins has resigned his position as Manager of the Georgia Iron Works at Atlanta, in order to devote all his time to the bridge business of the firm of Wilkins, Post & Co.

The California Bridge Co., at Oakland, Cal., has just completed a bridge near Oroville, Cal., over Butte Creek.

The Central Bridge Co., of No. 52 Wall street, N. Y., has bought the bridge works formerly owned by the Kellogg Bridge Co. at Buffalo, N. Y., and has improved and enlarged them.

The Phoenix Iron Co., at Phoenixville, Pa., is furnishing the iron roof trusses and roof of the new custom-house and post-office building in Cincinnati.

Iron and Manufacturing Notes.

The Silver Lake Co., of Boston, has received an award from the International Exhibition at Sidney (Australia) for its solid braided cordage there exhibited.

The Tanite Co., at Stroudsburg, Pa., has been compelled to enlarge its works to meet the increasing demand for its emery wheels. It was intended to put up a building 24 by 64 ft., four stories high, but as it was impossible to get the necessary lumber in time, a new shop 24 by 32 ft., two stories, will be built, and enlarged next season according to the original design.

The offices of the Rand Drill Co., the Manhattan Mining Co., the Rendrock Powder Co., J. R. Rund & Co. and A. C. Rand have been removed from No. 21 Park Row to No. 240 Broadway, New York.

Mr. Louis Scofield, Sr., has been appointed Manager and Superintendent of the Georgia Iron Works at Atlanta, in place of Mr. Grant Wilkins, resigned.

The production of iron ore in New Jersey in 1880, as reported by State Geologist George H. Cook, was 845,000 gross tons, against 488,028 tons in 1879, an increase of 356,972 tons, or 73 per cent.

The Keystone Rolling mill in Pittsburgh, heretofore owned by Williams, Long & McDowell, has been transferred to the Keystone Rolling Mill Co., limited, a new organization.

Riter & Conley, builders of bridges, boilers, tanks, etc., in Pittsburgh, are putting up a new building, which will nearly double the capacity of their works.

The National Tube Works Co. has leased 10 acres of land adjoining its works at McKeesport, Pa., with privilege of purchase, and will extend its works.

Callie Furnace, near Williamson, Va., is in blast and doing well. It is owned by Hileman, Waring & Co., successors to the late firm of Hileman, Cook & Co.

Mr. D. S. Cook, late of the firm of Hileman, Cook & Co., is about to build a large blast furnace on the Richmond & Allegheny road, near Williamson, Va. He will use ore from Rich Patch Mountain, two miles distant.

Naomi Rolling Mill, near Reading, Pa., owned by Samuel R. Seyfert, will soon be started up.

Morrison, Colwell & Co. are adding to their rolling mill at Cohoes, N. Y., a new building and some new machinery.

A Long Way Around.

Hon. Isaac Burpee, Manager of the New Brunswick Railway, goes to Halifax to-day to take over a considerable quantity of rolling stock, purchased from the Western Counties Railway, and formerly used on the Windsor Branch. It costs the New Brunswick Railway Company some \$60,000, and it will probably have to make a long journey before it

reaches its destination. It will have to be carried by the Intercolonial to Point Levis, up by the Grand Trunk to Richmond, and down same line as far as Danville Junction; thence by the Maine Central to Bangor; from Bangor by the European & North American to Vanceboro; and thence by the New Brunswick & Canada to Woodstock. The proverb that "the longest way round is the shortest way home" will hardly apply in this case.—*St. John (N. B.) Telegraph*, April 21.

From Windsor, N. S., the terminus of the Windsor Branch, to Woodstock, N. B., by the route laid down above is 1,204 miles; the distance in an air line is a little under 150 miles.

Trackmen's Reasons.

The reasons given by track repairers for flagging trains are sometimes amusing. An Erie engineer was told recently, upon being flagged, that: "De track videns oud, und de track videns in de bolds is oud und de spikes is oud, und you got to go slow on dat section."

Another, on being asked what was the matter with him, said: "Phat's the matter wid me! Phat's the matter wid you! Go to h—l, and don't pass the min beyond till the bicksom at you."

Another said: "They are putting in iron down where Murphy had the potato patch last summer."

Another said: "The min are putting in a broken rail down forninst the sand bank."—*Port Jervis Gazette*.

British Rail Exports.

The total exports in the month of March and for the first three months of the year have been:

	1881.	1880.	Inc. or Dec.	P. c.
Iron rails	12,023	12,812	D. 789	6.2
Steel rails	36,484	26,553	I. 9,931	37.4
Total	48,507	39,365	I. 9,142	23.2
Three months:				
Iron rails	30,082	32,796	D. 2,714	8.3
Steel rails	80,396	76,955	I. 3,441	4.5
Total	110,478	109,751	I. 727	0.7

Of "railroad iron of all kinds," which includes iron and steel rails and a little other iron, the exports to the United States were 25,828 tons in March this year, against 15,198 tons last year; the exports in March this year were more than in January and February together.

The exports to the United States for three years have been:

	1881.	1880.	1879.
Iron rails	10,829	10,518	...
Steel rails	14,801	4,010	372
Total	25,720	14,528	372
Three months:			
Iron rails	26,911	24,067	376
Steel rails	20,976	17,522	808
Total	47,887	41,589	1,184

In March this year the exports to the United States were greater than in January and February together, and nearly 70 per cent. greater than in March of last year. There is, however, very little increase in the exports of iron to this country, while the exports of steel rails were 270 per cent. greater. The total exports this year were sufficient to lay 514 miles of track with 56-lb. rails.

Of the total British rail exports in March more than one half went to the United States this year.

Stealing a Locomotive.

Detective Hildebrand returned from Lawrenceville this morning at 2 o'clock, where he has been for several days past, working up a case worth mentioning.

Thursday night last, some unknown parties boarded an engine belonging to the Lawrenceville Branch Railroad, and pulling the throttle started out on tour of inspection. Not being expert locomotive drivers the engine became unmanageable and continued its mad run until the steam gave out when it came to a halt in the midst of a forest. The next morning when the engineer repaired to the yard to fire up for his trip he was surprised to find his vehicle gone. After a lengthy search the truant was found where it had stopped. The fire was out, the water gone, and only after a great deal of labor had been spent did the wheels begin to revolve.

A searching investigation was made, but without a favorable result until Detective Jones was called upon. At once he detailed Mr. Hildebrand, who a few days ago secured the boys who did the work. Both of "the boys" are young men of acknowledged standing in their count—one being a physician and the other the son of one of the largest stockholders of the Lawrenceville Branch Railroad. Subsequent to their arrest they owned up, and pleading a spree in extenuation of the offense wrote Colonel Foreacre an apology. This ended the matter and the boys are happy.—*Atlanta (Ga.) Constitution*, April 22.

The Rail Market.

Steel rails are still in demand for early deliveries, and as high as \$65 per ton has been paid for a small lot, but \$62 to \$64 are more usual figures. Contracts for next winter and spring delivery are taken at \$60.

Iron rails are active, and a good many transactions are reported. For heavy rails \$46 to \$46.50 per ton at mill is quoted; light rails, \$47 to \$51; English rails are offered at about \$45 at tidewater.

Old iron rails are weak and unsettled. As far as they can be quoted, the Philadelphia prices are \$27 to \$28.25 per ton, but buyers expect to get lower prices.

The Largest Lake Vessel.

The Cleveland *Herald* thus describes the five-masted schooner *David Dows*, recently launched at Toledo, for the firm of Carnington & Casey, who will use her in the grain trade on the lakes:

"The *David Dows* is, in all respects, the largest mast vessel ever launched at a lake port, or that ever sailed the waters of the great chain of lakes. She measures 278 ft. in length, is 287 ft. over all, 39 ft. beam and 20 ft. hold. It is claimed that she will not only be the largest, but the strongest and most substantial craft on the lakes, and the many careful steps taken in her construction to secure strength would seem to indicate this latter point. Her floor timbers along the keel are 12x7 in., tapering down to 4x6. Her planking is unusually heavy, ranging from 4 to 7 in. inside and out. Among other precautions for strength is an iron strap belt 8x1 in. around her on the outside of the timbers and inside of the planking, and diagonal belts 4x5.8 in. She has two centre boards, 27 and 25 ft. long, respectively; three keelsons, 16, 14, and 12 ft., and shifting bulkheads. She has five spars, four of them full rigged and the foremast square rigged. In her construction nothing but the most perfect timber has been used, it all having been culled over carefully after reaching the yard. The total cost of the wood-work is about \$78,000. All of the work has been done by the Bailey Brothers under the

superintendence of Captain Skelton, who will command the vessel.

"The *Dows* will carry between 5,000 and 6,000 yards of canvas, and from this fact alone an idea of her proportions can be gained. She is, as stated above, square rigged forward, has foresail, mainsail, mizzenail, jiggersail, and jiggermizzenail, foregaff topsails, two topstaysails, one square sail, upper and lower topsails, and a multitudinous number of sails, some of them being made and manned especially for the *Dows*. There are 400 yards of hatch covers alone. The contract for rigging the vessel was let to the Messrs. Wilcox Bros., and the price paid will be about \$16,000.

"On deck she presents a sight massive as it is grand. Her eight hatches are well protected, as one would suppose, and every pin, spike or rope has its own particular and peculiar place. The forecastle forward is a spacious compartment, well lighted and ventilated, and having eight bunks, all sizeable and serviceable. The ice and provision house is located amidships, is finished in the best possible manner, and provided with arrangements for keeping rations in a good, sound state.

"Her cabin appointments are the finest of any boat on the lakes. The large dining room, captain's room; pantry and other compartments are handsomely grained and will be provided with all modern furniture ready for use and comfort. The artist who did the decorative work has indeed made it his masterpiece, and this may be said of the entire painting done on the boat. J. W. Potts was the contractor who performed this part of the work, and he has given great satisfaction in all respects.

"The carving is another feature deserving of special mention. The figurehead represents a dragon, massive in proportion, being 24 ft. long from tip to tail, handsomely gilded and well put on. The stern also bears the work of the carver, the scrollwork and name all being hewn out by hand. Mr. George Buck, of Brooklyn, N. Y., performed this difficult task, doing his work in a neat and tasty manner. Mr. Buck carved the figureheads to the *Erastus Corning* and several of the largest steamers and sailers on the lakes.

"The total carrying capacity of this nautical Leviathan will be 140,000 bushels of grain, but she cannot carry over 90,000 out of Toledo harbor, at least until that future great time when we shall have a deepened and straightened channel of several feet more water than there is at present. She registers 1,481.63 tons. When loaded to 15 ft. draft, as she will be when she carries 130,000 or 140,000 bushels, she can be handled much easier than many smaller craft. Her crew will consist of twelve men, with necessary cook and other culinary attendants."

A Long Journey.

When one of the trains to this city came in at midnight, a few nights ago, an old man was found sleeping in one of the seats; the conductor flashed his lantern in his face, the brakeman stirred him up, and one or two passengers looked at him carelessly, but no person seemed to belong to him. He was neat and clean, but thin and wasted by old age or privation. All sorts of troubles were mapped out on his clean, withered face, but the main thing just then was to get him awake and on his feet, and out of the car.

"I say, old man," yelled the conductor in a seven-league voice, "git out of this; do ye hear? This is Detroit. If you've got any friends they'll be looking for you."

He opened his eyes so wide and sudden that the brakeman and the conductor and the curious passenger fell back on each other in a heap, but only his lips moved:

"Where's Gracie?"

"Who?" asked the conductor, recovering his official voice.

"Little Gracie—grandpa's little pet? I brought her with me. Is she—is she there?"

"I guess he is not wide awake yet," said the curious passenger. "Suppose you help him to his feet."

Conductors are experts in helping people to their feet, and this one was no exception to the rule. He took the old man by the coat collar and stood him up, but he sank down the next moment limp and motionless. Just then a depot hand came in.

"The haggagmaster wants to know what you're goin' to do with that mite of a deal box over there. He don't want any of that kind left over, and there ain't no direction on it but 'Gracie'?"

"That's her!" said the old man, and he stood up feebly. "Take me there. We're going a long, long journey—Gracie and me; a long, long journey, but it don't seem as if I knew the way right clear."

They took him into the depot and laid him on one of the benches and put his old carpet-bag under his head, but he still fretted for his "little Gracie—his pet," and at last they consoled him by telling him she was resting, was asleep, and must not be disturbed.

"We've a long, long journey to go," he kept saying to himself; "and grandpa's baby mustn't get tired. It's a long way, a long way."

The little "box" with Gracie written upon it in lead pencil, was safe enough with the other "freight," and the old man slept peacefully at last. Some kind soul threw a rug over him near morning, and asked him what train he was waiting for, but all the answer he made was a feeble "Thank'ee; call me at sunrise. We're going a long journey, Gracie and me."

He was called at sunrise by a voice that none may refuse, and when a flood of rosy light shone into the dreary room he was up and away—gone on his long journey. Only the worn-out body was there, and yesterday it was laid away with "little Gracie" in the stranger's lot at Mount Elliot, alone, unknown, yet possibly in as "sure hope of a glorious resurrection" as if marked by thirty feet of monumental clay.—*Detroit Post and Tribune*.

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Blast Furnaces of the United States.

The following figures are from the quarterly report of the condition of the blast furnaces of the United States on April 1, prepared by the *Iron Age*:

Kind of furnace	In blast.	Out of blast.	Not reported.	Total.
Charcoal	139	132	4	275
Anthracite	159	80	..	239
Bituminous or coke	155	64	..	219
Total	455	276	4	733

Weekly capacity, tons..... 97,004 41,153 138,157

The average capacity of the 458 furnaces in blast was 214 tons; of the 276 out of blast, 149 tons. This shows that it is the smaller and older furnaces which are out of blast, as has been the case for some time past.

The number of furnaces of all kinds in and out of blast, April 1, for the past five years has been:

	1877.	1878.	1879.	1880.	1881.
In blast	218	252	241	431	453
Out of blast	188	458	463	260	276
Percent in blast	30.9	35.3	34.2	62.4	62.2

Thus at this time, when the demand for iron is very great, about three-eighths of the furnaces are out of blast; and the large demand of the last year has resulted in an increase in the whole number of furnaces from 691 to 729, or 5% per cent.

The increase in the number of furnaces in blast is largest in charcoal furnaces (139 against 102 last year), and there is a large decrease (from 189 to 159) in the number of anthracite furnaces. In bituminous furnaces there is an increase from 140 to 155. There was an increase of 38 in the whole number of furnaces, 15 of which were charcoal, 10 anthracite and 13 bituminous furnaces.

OLD AND NEW ROADS.

Alabama Central.—This road has passed under the control of the East Tennessee, Virginia & Georgia and will be hereafter under the management of the officers of that company. The road extends from Selma, Ala., west to Lauderdale, Miss., and has the right to use the Mobile & Ohio track from Lauderdale to Meridian.

Atlantic & Pacific.—Track is laid to New Wingate, N. M., the station for Fort Wingate, which is 145 miles from Isleta, the junction with the Atchison, Topeka & Santa Fe and 157 miles from Albuquerque. Grading is nearly completed to the Little Colorado, 125 miles west of New Wingate, and track laying is progressing rapidly. The force at work has been gradually increased and nearly 2,500 men are now said to be on the road.

A company has been formed to build a branch from road to Prescott, the capital of Arizona, about 55 miles.

Austin & Northwestern.—This company has been organized at Austin, Tex., and has fixed its capital stock at \$3,000,000. The projected road is to run from Austin by Burnet and San Saba, 300 miles in a northwestern direction to Abilene, Taylor County, where it will intersect the Texas and Pacific road, with a branch of about 100 miles from Burnet through Llano, Mason, Menard, Concho and Tom Green, to a point of intersection with the Texas & Pacific in Howard County, Tex., in all about 400 miles.

Bangor & Piscataquis.—Some of the stockholders of this company have resolved to apply to the Supreme Court for the appointment of a receiver. Their object is to have the net earnings applied to the extension of the road to Moosehead Lake.

Boston, Concord & Montreal.—The directors have voted to issue the entire amount of new 6 per cent. 30-year bonds recently authorized (\$1,500,000), and \$500,000 will be marketed at once. The proceeds will be used in the improvement of the property.

Buffalo, New York & Philadelphia.—The agreements referred to last week for the purchase of this road have been completed. The stock of the company held by the city of Buffalo has been transferred, the syndicate paying the city its par value, \$700,000, in cash.

The latest report is that the whole combination, including the reorganization of the Buffalo, Pittsburgh & Western and its proposed consolidation with this and other companies, is in the interest of the Standard Oil Company, which will control the entire combination. As the Standard Company now depends chiefly on pipe lines, and can get its traffic carried much more cheaply than by a road of its own, this is not probable.

Canadian Pacific.—This road will be formally transferred by the Canadian government to the syndicate May 2.

A dispatch from Montreal, April 21, says: "Duncan McIntyre, one of the directors of the Pacific Railway Company, has arrived from London. He states that the syndicate has made all necessary arrangements for carrying on the work vigorously, and ordered 20,000 tons of steel rails for delivery here this summer. It arranged to build the line to connect the Canada Central with the Sault Ste. Marie during the present year, and will place steamers on Lake Huron to Thunder Bay, from which place the line of railway will be finished to Winnipeg before the immigration season of 1883. The branch line to the Souris coal fields in Manitoba will also be pushed forward during the coming summer. These new enterprises will not be allowed to interfere with the furtherance of work on the railway north of Lake Superior or any of the other sections, as will be carried on simultaneously. While in England, the syndicate sold 300,000 acres of land, at \$2.50 per acre. These lands will be settled immediately. Mr. McIntyre thinks immigration this year will not be on a gigantic scale, as the company was too late in making preparations through the delay of the railway contract in passing the Canadian Parliament. However, he has no doubt of the future. No bonds of the company were issued in London, and the syndicate resolved not to issue any until the railway is almost completed right through to the Pacific coast. The other directors will arrive here from England next week."

Central, of New Jersey.—It is stated that the directors have resolved to extend the High Bridge Branch north-east to a connection with the Erie road near Turners, the object being to secure an outlet for the coal traffic to the Hudson River at Newburg and thence to New England over the New York & New England road. The line has not yet been surveyed, but to one familiar with the country the most feasible line would seem to be up the Longwood Valley, crossing the Midland near Oak Ridge and thence passing west of the Macopin ponds to the lower end of Greenwood Lake, and passing above the Sterling Iron Works to the Erie either just above Southfields or near the Newburg Short Line junction. This would require about 40 miles of new road, without much heavy work.

It is also announced that the board has appointed a committee to complete the necessary agreements for the proposed western line. This is to be formed by using the Central's line to Tamaqua, Pa., then the Reading's Catawissa line to Milton, the Philadelphia & Erie from Milton to Driftwood and the Low Grade Division of the Allegheny Valley to Red Bank, whence a new road is to be built to Youngstown, O., about 70 miles. Beyond Youngstown it is not stated what connections will be made. By this line the distance from New York to Youngstown will be about 490 miles, of which the Central will control 209 (including the 70 miles of new road), the Reading 64 and the Pennsylvania 217 miles.

Central Iowa.—A dispatch from Dubuque, Ia., April 24, says: "Some few days ago the Central Iowa jumped the grade of the Dubuque & Dakota Rail road from Hampton west and commenced to lay track. By this move it is hoped to secure some \$50,000 of work built by the Dubuque & Dakota road, which the latter forfeited by failing to build as agreed. The law was called to decide, and a compromise was effected whereby the former is to have undisputed possession of the grade from Hampton, west."

Chelsea Beach.—This company has been organized to build a branch road a little over a mile long, from

freight, passengers and express, with proper depots and transfer yards.

2. The operation of a freight clearing house in connection with the transfers.

3. To afford the rapid transit facilities now demanded by the extraordinary increase of Chicago manufacturing interests, and to extend these facilities to the great extent of unoccupied land which will be opened by the construction of this road.

The line proposed is about 34 miles long, and is to be double track. The company will provide its own engines for making all transfers and doing all the work on its own track.

Chicago, Decorah & Minnesota.—This company has been organized to build a railroad from Decorah, Ia., to connect with the Burlington, Cedar Rapids & Northern at Postville.

Chicago, St. Louis & New Orleans.—It has been decided to change the gauge of this road from 5 ft. to the standard 4 ft. 8½ in. about June 1. Preparations for the change are now being made.

Columbus & Toledo.—Detroit advices state that this company has under consideration the extension of its road from Toledo to Detroit, and that the probabilities are that it will be built, making the third line between those two cities. The extension is considered of great importance to the coal and lumber business of the road.

Connonton Valley.—Parties in the interest of this company have bought the graded road-bed and right of way of the Cleveland, Canton, Coshocton & Straitsville Company, with the intention of completing the line as a branch of this road. The line of the road bought is from Canton, O., to Straitsville, about 105 miles.

Credit Valley.—At a joint meeting of stock and bondholders in Toronto, Ont., April 12, the directors were authorized to issue 5 per cent. debenture stock to the amount of \$20,000 a mile to replace the 7 per cent. bonds amounting to \$12,000 a mile. The exchange is to be for equivalent amounts. The total amount of the new issue will be \$3,720,000, and the additional interest payable, notwithstanding the reduction from 7 to 5 per cent., will be \$29,760. To enable the company to pay this increased interest, not only the earning capacity but the actual earnings of the company must be considerably increased. In case any bondholder refuses to make the exchange, the company is to reserve an amount of debenture stock equal to the bonds refused to be surrendered.

Denver, South Park & Pacific.—The following statements are published by the President of the company:

"1. The road is owned by the Union Pacific Railroad Company, it having paid par in cash for its stock.

"2. It is now operated as the South Park Division of the Union Pacific Railroad.

"3. The reason the earnings are not reported as formerly is because they go into the general receipts of the Union Pacific Railroad Company. * * *

"5. The track of a large part of the line is now being replaced with 45-lb. steel rails, which is unusually heavy for a narrow-gauge road.

"6. The Union Pacific Company is now pushing forward the three extensions of the road to Gunnison City, Fairplay and Breckenridge.

"The Alpine Tunnel, of 1,800 ft., on the former extension, is nearly completed, and the track will undoubtedly reach Gunnison City this season."

East Tennessee, Virginia & Georgia.—The Selma, Rome & Dalton road has now been completely merged in this company, and will be known hereafter as the Selma Division of this road.

Fitchburg.—The Boston *Advertiser* says: "It is said that the Fitchburg Railroad Company is seriously contemplating the construction of a branch line to Lowell, via Arlington, Woburn and Winchester; and that the surveys for the same are already partially completed. The plan under consideration is to have the road leave the Fitchburg at a point a short distance west of the Watertown Branch junction, and use the old Arlington Branch as far as possible; and thence, passing through the centre of the town of Arlington, either go north of Mystic Pond or below it, striking the Mystic Valley road. The line would prove a formidable rival to the Boston & Lowell Company, and, in a measure, undoubtedly offset a portion of the injury likely to be done to the Fitchburg road's business by the construction of the Massachusetts Central as an independent line from Stony Brook to North Cambridge, which was brought about chiefly through the efforts of the Lowell road.

"The long, wooden railroad bridge, near Pequoig station, on the Vermont & Massachusetts Division, which was totally destroyed by fire on Tuesday afternoon, has been replaced by a trestlework of over 200 feet, and after a two days' interruption trains are now running as usual."

Florida Southern.—The Boston *Advertiser* says: "The Florida Southern Railway Company, which is to connect Palatka on the St. Johns River with Gainesville, and west to Lake City and south to Tampa Bay, will open up the entire state. It is a narrow-gauge railroad, and when completed will consist of 390 miles of road. It is expected that the first division between Palatka and Gainesville will be open during the month of June. Mr. Jonathan Dwight, who built the Toledo & Delphos road and the extension of the New York & New England, is superintending the construction. The road will not only afford direct communication with the North for the rapidly increasing orange trade, but it will enjoy a very remunerative traffic from the lumber trade, which promises to be a most important item."

Ft. Wayne, Muncie & Cincinnati.—The United States Circuit Court has granted a final decree of foreclosure of the first mortgage, and ordered the sale of the road after 60 days notice. The road extends from Ft. Wayne, Ind., south to Connersville, 104 miles, and has been in the hands of a receiver several years. The first mortgage bonds amount to \$1,800,000, and there are \$845,000 second-mortgage and equipment bonds.

Grafton & Greenbrier.—This company has filed articles of incorporation in West Virginia to build a railroad from the Baltimore & Ohio at Grafton, south to west to some point on the Chesapeake & Ohio in Greenbrier County. The distance is about 120 miles.

Hannibal & St. Joseph.—Notice is given that on April 25 there were 25 land-grant bonds drawn for redemption by the sinking fund. The drawn bonds will be paid on presentation to the Farmer's Loan and Trust Company in New York; interest on them will cease sixty days from date of drawing. The numbers drawn are 23, 47, 80, 89, 92, 183, 259, 302, 308, 347, 377, 474, 499, 515, 525, 570, 573, 597, 634, 668, 682, 702, 795 and 859.

Hartford & Connecticut Valley.—At a meeting held in Hartford, Conn., April 23, the stockholders voted to accept the amendments to the charter passed by the Connecticut Legislature recently; also to begin work as soon as possible on the extension from Hartford north to Holyoke.

Hudson River Tunnel.—This company has executed a mortgage to the Central Trust Company of New York to secure an issue of \$10,000,000 bonds. These bonds are to bear 6 per cent. interest, have 30 years to run, and will be known as first-mortgage construction bonds. The trustee is to retain \$300,000 to provide for debts already incurred, and the balance will be sold to provide for the construction of the tunnel.

Indiana, Bloomington & Western.—This company has issued the following circular:

"Notice is hereby given that the new consolidated company is now ready to issue its stock. The holder of each share of the old company's stock will be entitled to receive, on the surrender of his certificate, two shares of \$100 each of the stock of the new company.

"By virtue of an arrangement effected with the stockholders of the late Ohio, Indiana & Pacific Railway Company, this company offers, up to and including June 30, 1881, to the holders of the old income bonds the option to convert their bonds into the stock of the new company at the same rate, that is to say: Two shares of \$100 each of stock will be given for each \$100 of income bonds."

"On and after July 1, 1881, for a limited time, the income bonds which shall not have been converted into stock will be convertible into new consolidated mortgage income bonds dollar for dollar."

Indianapolis & Logansport.—An organization has been made of a company to build a railroad on the shortest possible line from Indianapolis to Logansport, Ind., to connect with the Pittsburgh, Cincinnati & St. Louis road.

Keokuk & Northwestern.—Surveys are being made for the extension of this road from Salem, Ia., to Fairfield, about 20 miles.

Knoxville & Ohio.—The new line at Black Oak Ridge, five miles from Knoxville, Tenn., is now under contract. It will require some six months to complete, as there is some heavy work to be done. It will reduce both grades and distance from those of the present line.

Little River Valley & Arkansas.—It is reported that this road has been sold to the Texas & St. Louis Company, and will be used as part of its proposed extension from Texarkana to the Mississippi. This road runs from New Madrid, Mo., westward, 27 miles, and is of 3 ft. gauge.

Lodi, Montezuma & Terre Haute.—This company has filed articles of incorporation to build a railroad from Terre Haute, Ind., to Lodi in Parke County, a distance of 35 miles.

Louisville, New Albany & Corydon.—This company has been organized to build a branch from the Louisville, New Albany & St. Louis road to the town of Corydon, Ind. It will be about eight miles long.

Manhattan Elevated.—This company has presented a memorial to the Mayor and City Council of New York asking their aid in obtaining relief from taxation. The memorial represents that the estimated earnings this year are \$5,200,000; expenses, interest and taxes, about \$5,500,000. The taxes are estimated at \$750,000, and unless part of them, at least, are remitted, the company fears that it will not be able to meet its engagements.

The case is undoubtedly a very sad one, but somehow in New York people do not seem to sympathize with the company very much.

Mexican National.—A dispatch from Galveston, Tex., April 27, says: "The steamer *Aransas*, which arrived yesterday morning from Corpus Christi, brought General Palmer and other members of the Mexican National Company from northern Mexico. The captain of the *Aransas* reports twelve vessels between Corpus wharf and Galveston loaded with railroad material for this company. General Palmer says he now sees no reason why this company should not have its tracks completed to Laredo in June; to Monterrey, 336 miles from Corpus Christi, in December, and to San Luis Potosi by the close of next year, meeting the line being built by the same company from the city of Mexico northward. There is a very heavy force on the latter section, and the heaviest work of the entire road, including two difficult tunnels, will be completed and the road opened to Toluca early in July. General Palmer also says the existing business awaiting the Toluca Division is larger than that of any railroad he knows of west of Kansas City. Having been heretofore over the entire route from the Rio Grande to the city of Mexico, and repeatedly over portions of it, he believes from the day the line is opened the traffic per mile will exceed that of the Denver & Rio Grahame Railway, of which he is also President."

Midland, of New Jersey.—The branch or extension west to the coal fields is known as the Midland Connection Railroad.

Proposals will be received until May 1, at the office of Daniel H. Wood, Chief Engineer, No. 17 Cortlandt street, New York, for the construction of the section of this Midland Connection Railroad from Ogdensburg, N. J., to Stillwater. Profiles and specifications can be seen at the Chief Engineer's office, as above.

Missouri, Kansas & Texas.—A dispatch from Dallas, Tex., April 27, says: "Chief Engineer Marion said in an interview that it was an established fact that the road will be built to Galveston. The line is now being located from Virginia Point to Randon, on the Galveston, Harrisburg & San Antonio road. The survey from Waco to the International & Great Northern road is completed. From the International line will be run to the mouth of the Brazos River and Aransas Pass, the latter survey to be made in six weeks. If the road goes to Aransas Pass it will connect with the Palmer-Sullivan system at Corpus Christi, via the main land around Aransas, Neches and Corpus Christi bays. Track laying from Fort Worth begins Monday."

The proposed consolidation with other southwestern lines is referred to elsewhere.

Mutual Union Telegraph.—This company, organized in New York, has constructed a telegraph line from Boston to Washington, and now proposes to extend its line from New York and Boston to the chief western cities. It is offering, through George Wm. Ballou & Co., of New York and Boston, its 6 per cent. bonds to the amount of \$5,000,000. They are offered at par, each purchaser of \$10,000 to receive an equal amount of stock.

Nantucket.—This company announces that the road-bed is nearly finished, and that the ties are on the ground. It will be completed in time to accommodate this summer's visitors. The road runs from Nantucket across the island to the south shore, and then along the coast to Siasconset, about 10½ miles, and will be 3 ft. gauge. The directors have authorized the issue of \$60,000 first-mortgage 7 per cent. bonds, payable in 1900, to secure funds for purchasing iron and equipping the road.

Nashville & Tuscaloosa.—This company has completed a branch 1½ miles long from its road near Graham, Tenn., to Warner Furnace. It is intended to carry the traffic of the furnace.

New Castle & Franklin.—The Court has confirmed the sale of this road under foreclosure, and ordered a deed executed as soon as the purchase money is paid into Court.

Newfoundland.—It is announced that a syndicate composed of William Bond, A. L. Blackman, C. X. Hobbs, F. A. Allen and General Vasquez have made a contract with the Newfoundland authorities for the construction and maintenance of a line of railroad from St. John's to the Newfoundland copper mines at Hall's Bay. They are also trustees of the road. The road will be about 300 miles in length on the main line, with a branch about 30 miles long. The main line will run across the copper belt of the country, and through the interior west of the coast range, opening a country said to be rich in timber and minerals. The interior of the island is now little known, and almost uninhabited, nearly all of the population being near the coast.

The estimated cost is \$6,000,000, and the road is guaranteed to be completed in three years. The Newfoundland authorities have agreed to pay the company \$185,000 annually, for 35 years, as a subsidy, and also have granted 5,000 acres of land for each mile of road built, the company to have the right of selecting the land it requires. The route has been surveyed for about 150 miles.

New York, Lackawanna & Western.—The Buffalo *Commercial Advertiser* says: "The construction of the extension of the Delaware, Lackawanna & Western from Binghamton to Buffalo is progressing with all possible speed, and no expense is being spared to make the road one of the very best in the country. A gentleman who has been over the grounds informs us that the new five-span iron bridge over the Susquehanna River at Binghamton, is one of the handsomest in the state. It has double tracks, and is tastefully painted in green and red. The company has expended over \$100,000 in Binghamton during the past 30 days in the purchase of buildings and for excavations. From that city to Elmira the route is as near an air line as it is possible to make it. It crosses the Chemung River at various places over wrought-iron bridges, and avoids every possibility of making curves. The Erie tracks north of Elmira are crossed by an elevated bridge, and it is the intention to cross all tracks of other roads in this manner or by tunneling under them. In making elevations spiles are driven and gravel filling is put in as fast as possible. The company claims that it will have the line completed to Buffalo by October next, and that the time between this city and New York will be two hours less than by any other route."

New York, Lake Erie & Western.—The Newark Branch was changed from 6 ft. to standard gauge on April 23. The work was small, as a third rail had been laid some time ago from Paterson to East Newark, and it only remained to move the rails on the five miles from East Newark to the Bergen Tunnel.

New York & New England.—This company has sold an additional issue of \$500,000 of its 6 per cent. first-mortgage bonds to Charles A. Sweet & Co., of Boston, at 107.19 and accrued interest. There were eight bids for the loan, the lowest being 105.75 and interest.

New York, New Haven & Hartford.—This company is having surveys made for a branch from Windsor, Conn., northwest to Poquonock, about four miles. It will reach some large factories.

New York, Providence & Boston.—This company is making arrangements to begin work on a bridge over the Thames River from Groton to New London, Conn. It will probably be located about 1½ miles above the ferry crossing. It is estimated that the interest on the cost of a bridge will be considerably less than the cost of maintaining the present ferry.

Norfolk & Western.—It has always been understood that the Louisville & Nashville Company was to be represented in the management of this company, which is successor to the Atlantic, Mississippi & Ohio. It is now reported that it is trying to secure a controlling interest, with every prospect of success.

Northern Pacific.—It is reported that negotiations are in progress for a compromise in the several litigations between the Villard and Billings parties, but nothing definite is known about them.

Northern Pacific, Fergus & Black Hills.—The following circular has been issued, which explains itself:

"At a meeting of the board of directors of the Minnesota Northern, held at the office of the company, No. 23 Fifth Avenue, New York, March 18, 1881, it was resolved:

"That the name of this company be, and is hereby, changed to the 'Northern Pacific, Fergus & Black Hills Railroad Company.'"

The route of the proposed road, as defined by its articles of incorporation, is as follows: "From a point on the Northern Pacific near Wadena, in the county of Otter Tail, in the state of Minnesota, southwesterly by the way of East Battle Lake and Fergus Falls, to the western boundary line of said state, and thence to the Black Hills, in the territory of Dakota; and branch railroads as follows: From Fergus Falls, northerly, up the Pelican Valley, to the northern boundary line of said county of Otter Tail, and thence to the said Northern Pacific Railroad; from a point on the said main line in East Battle Lake township, in said county of Otter Tail, in a southerly direction, through the counties of Douglas and Pope, to Benson, in the county of Swift, in said state; and from a point on said main line east of Fergus Falls, northerly, by way of Otter Tail Lake, Perham, and Red Lake Falls, to the northern boundary line of the state of Minnesota."

The company is organized in the interest of the Northern Pacific.

Oregon Railway & Navigation.—This company makes the following statement for March:

	Gross earnings.	Net earnings.
River Division.....	\$210,250	\$110,250
Division.....	78,044	30,044
Railroad Division.....	18,600	6,000
Total	\$306,894	\$155,294

As compared with March, 1880, the total net earnings show an increase of \$11,087, or 7.7 per cent.

Pennsylvania.—The Philadelphia *North American* of April 26 says: "All the work of construction on the Filbert street elevated extension of the Pennsylvania Railroad is now completed, but Chief Engineer Brown still has charge of it. He will thoroughly test all the freight elevators and machinery this week, in order to make assurance doubly sure that it will be in first-class order for the inauguration of regular freight business over it, which will take place on Monday next, all the arrangements having been made for the opening of the extension for this branch of traffic on May 1, as was promised some time ago. Sixteen freight cars were placed on the viaduct yesterday for testing the loading and unloading apparatus."

"The line of the Filbert street extension leaves the present passenger tracks near Powelton avenue, and crosses the tracks connecting the main line with the Junction road by a five-span plate girder bridge. The grade of the embankment on which it crosses the West Philadelphia yard, is one-half foot per hundred, and over Thirtieth street is a wrought-iron deck bridge, 33 feet above the street. The passenger tracks continue thence over the lowland north of the grain depot by a double track, steel-plate girder superstructure of 14 spans, ranging from 44 to 56 feet in length, supported on wrought-iron columns, to the west side of the Schuylkill River. The freight track, leaving the West Philadelphia yard near the scale house, crosses Thirtieth street and the ground north of the grain depot by a single track, steel superstructure, similar to that described for the passenger tracks, but with an ascending grade of one foot per one hundred from Thirtieth street to the river.

"All the columns east of Thirtieth street have stone foundations built on piles driven home and cut off at low-water mark. The Schuylkill River is crossed 42 $\frac{1}{4}$ feet above ordinary high tide, on a wrought-iron double intersection triangular truss of three spans—one of 144 feet and two of 160 feet each, making a total length of 484 feet, with three tracks carried on top chord, supported on two abutments and two piers of eastern granite. The western abutment, 8 feet by 38 feet in size, and 22 feet in height, is built on a timber foundation resting on piles driven to the rock under the western bulkhead of the river. The western pier is built on a crib constructed of square timber filled with stone and concrete, and resting on the rock bottom of the river, 31 feet below low water.

"From the east end of the bridge to Twenty-fifth street the three tracks pass on Filbert street on a steel plate girder superstructure of 24 spans, on cross girders supported by iron posts, over stone foundations based on compact gravel 12 to 25 feet below the surface. At Twenty-first street the line curves to the right to Shock street. About 190 buildings of all kinds were removed along Filbert street, the hard bricks being used in the work. The roadbed from Shock to Sixteenth, 2,042 feet, is 106 feet wide for nine tracks. The segmental brick arches are of the following dimensions, viz.: Eight spans of 24 feet, 43 spans of 26 feet, and four arches over the cross streets of 50 feet span. All the arches have a rise or versed sine of seven feet, street arches springing from abutment piers of 18 feet in thickness at spring lines, and the smaller arches resting on piers of brick 4 ft. 4 in. in thickness, all built on stone foundation masonry from six to 20 feet in depth.

"The brickwork is surmounted with an asphalt pavement 1 $\frac{1}{4}$ inches in thickness, and on the edges there is a walk four feet wide for the employés. Near Seventeenth street is a locomotive turn-table, east of which is a hydraulic elevator for mail, express and baggage.

"The building on the square bounded by Fifteenth and Sixteenth and Market and Filbert streets, formerly used for the freight station, has been entirely removed and rebuilt of iron and brick, two stories high. All the freight will be received from and delivered to wagons on the ground floor, where a platform 220 by 390 feet is constructed for that purpose, the freight being moved between the first and second floors with 16 hydraulic elevators eight feet square, capable of lifting five tons each. All that portion of the second story, 134 feet in width from Market street, is laid with four tracks for freight with standing room for 35 cars, with a platform 20 feet in width between each pair of tracks. That portion of the second floor parallel with Filbert street, extending from Fifteenth to Sixteenth streets, and 170 feet in width, is intended for a shed for the incoming and outgoing passenger tracks. Each shed includes four tracks, with two platforms 20 feet in width, raised about 14 inches above the top of rail. This portion of the building is covered with a handsome curved roof, and the side next to Filbert street is inclosed with an ornamental brick wall. Fifteenth street is crossed by the eight passenger tracks on substantial iron plate girders supported by brick abutments on each side. At this point the grade of the road is 19 feet above the surface of the street. The space between Fifteenth street and Merrick street, a distance of 122 $\frac{1}{2}$ feet, and extending from Filbert street southward 190 feet, is occupied by the passenger station, which is incomplete.

This company has bought the Milford & Bay Shore charter, which authorizes the building of a railroad from Milford, Del., to the Pennsylvania line, with several branches. It is bought, probably, to keep it out of other hands.

This company's statement for March shows for all lines east of Pittsburgh and Erie, as compared with March, 1880:

An increase in gross earnings of (17.2 per cent.)..... \$566,118
An increase in expenses of (15.7 per cent.)..... 278,140

Net increase (19.1 per cent.)..... \$287,978

For the three months ending March 31, as compared with the corresponding period in 1880, the same lines show:

An increase in gross earnings of (8.8 per cent.)..... \$822,820
An increase in expenses of (14.8 per cent.)..... 768,357

Net increase (1.3 per cent.)..... \$54,463

For the three months of 1880 all lines west of Pittsburgh and Erie show a surplus over liabilities of \$906,937, being a decrease of \$82,192 as compared with the corresponding period last year.

Philadelphia & Reading.—On April 22 the Court issued the following important order in relation to the deferred bond scheme, revoking previous authority given:

"The motion for an injunction until final hearing having been argued by counsel and considered by the Court, it is ordered, adjudged and decreed that until the final hearing of this cause, the defendants and each of them be and they are hereby enjoined: First, from making or issuing the deferred income bonds mentioned in the bill filed in this cause, or any of them, and from making any contract on behalf of the corporation defendant in reference thereto, and from doing any act toward carrying out the plan set forth and described in the bill filed in this cause, and the exhibits annexed thereto, and known as the deferred income bond plan. Second, from executing any mortgage upon the property of the company, and from issuing any bonds or obligations secured by mortgage upon the property of the company, without the previous order of this Court, and from doing any act toward the carrying out of the scheme of an issue of bonds or obligations as a part of an issue amounting in the aggregate to \$150,000,000, to be secured by a new mortgage set forth and described in the bill and the exhibits thereto annexed."

Mr. Gowen met the decision of the Court that the deferred income bonds were not a loan within the meaning of the company's charter, because irredeemable, by proposing to make them redeemable at the company's option, after 1921. To this counsel for the other party objected.

On April 27 the United States Circuit Court made the following additional order:

"And now on this 27th day of April, 1881, it is ordered, adjudged and decreed that until the final hearing of this case, or until further order of the Court, the defendant corporation and the other defendants and each of them are and they hereby are enjoined from executing this mortgage upon the property of the company for \$150,000,000 as mentioned in the bill, and from issuing any bonds or obliga-

tions secured by such mortgage upon the property of the company, and from doing any act toward the carrying out of the scheme of an issue of bonds or obligations as a part of an issue amounting in the aggregate to \$150,000,000, to be secured by a new mortgage, as set forth in the bill and the exhibits thereto annexed."

Judge McKennan informed counsel for F. B. Gowen that the decree did not deprive him of the right to present any new plan to the Court for the financial reorganization of the company.

President Bond has given formal notice to all parties interested that he has been chosen President in place of Mr. Gowen. Further, that the new board has formally revoked all authority heretofore granted to Mr. Gowen to act for the company.

The Farmers' Loan & Trust Company, Transfer Agent in New York, has refused to transfer any more stock signed by Franklin B. Gowen as President, following in this the action of the Philadelphia transfer agents.

The Receivers make the following statement for March and the four months of the fiscal year from Dec. 1 to March 31:

	March.	Four months.	
Railroad Co.:	1881	1880.	1881.
Gross receipts	\$1,600,508	\$1,489,390	\$5,610,159
Gross expenses	918,112	859,113	3,377,048
Net profit	\$682,456	\$630,277	\$2,233,111
Coal & Iron Co.:			
Gross receipts	924,539	927,670	3,445,425
Gross expenses	890,286	872,214	3,235,198
Net profit	\$34,253	\$55,456	\$210,227
Total net, both cos.	\$716,709	\$885,733	\$2,443,338
			\$2,155,186

* Loss.

Expenses include all rentals paid on leased properties.

Mr. Gowen's address to the stockholders on April 23 was a disappointment to most of them. It is reported as being long (spoke three hours) abounding in eloquent invective against his opponents, and argument in favor of his plan for relieving the company from its present troubles; but he presented no statement of its business for last year, and gave really no new information.

Provincial & New England All-Rail Line.—It is reported that the arrangements recently entered into by the Maine Central, the European & North American and the St. John & Maine railway companies, by which a continuous all-rail line between Portland and St. John was formed, will probably soon be followed by the formation of a connection with the Intercolonial at St. John, thus making a continuous line from Portland to Halifax. It is said that the management of the Intercolonial has the matter under consideration, and there is a strong probability that the connection will be made. In the event of the Intercolonial joining the alliance a new bridge would probably be built across the river at St. John. At present the terminus of the St. John & Maine road is at Carleton, and passengers and freight have to be carried across the river to the city proper.

Rogers & Eureka Springs.—This company has been organized to build a railroad about 25 miles long from a point on the Arkansas Branch of the St. Louis & San Francisco road to Eureka Springs, Ark. Work is to be begun at once.

St. Lawrence Tunnel.—Mr. Walter Shanly, engineer in charge of the preliminary surveys for the proposed tunnel under the St. Lawrence River near Montreal, has completed his investigations, and announces the result of them. He says that it will go through Utica shale lying in horizontal deposits, which renders the making of the tunnel perfectly practicable. Two routes have been surveyed. The cost of No. 1 is estimated at \$8,000,000, and of No. 2 at \$4,100,000. These estimates provide for the highest character of excellence of the work. Ample allowances have been made for contingencies. No. 1 route will probably be selected, and it is contemplated to make a considerable reduction in its estimated cost by a better alignment of the approach to the north shore. The tunnel will be 26 ft. wide and 28 high, which will give ample room for double tracks. With ordinarily favorable circumstances Mr. Shanly is of the opinion that the tunnel can be completed within three years. There are nine roads interested in the success of the tunnel, the Quebec, Montreal, Ottawa & Occidental, the Canadian Pacific, the Canada Central, the Quebec & Ontario, the Southeastern, the Delaware & Hudson, the proposed South Shore, the International and the Intercolonial, with all their connections, and other roads as well. In the opinion of the engineer the completed tunnel will prove a profitable investment, as the volume of traffic that is expected to pass through it will prove sufficiently large to pay the expenses and return a fair dividend.

St. Paul, Minneapolis & Manitoba.—The Grand Forks, Fargo & Barnesville Branch has been completed by laying track on the gap of 16 miles which remained at the close of 1880 between the track laid from Fargo north, and from Grand Forks, south. This branch extends from Grand Forks, Dak., south to Fargo and thence southeast to Barnesville, Minn., 90 miles in all.

The company's main line is reported badly damaged by the overflow of the Red River. The extent of the damage cannot be ascertained till the water subsides.

Savannah, Florida & Western.—This company's new Jacksonville line now has all the track laid, and construction trains have passed over the whole line. It will be formally opened about May 1. The new line (which is the Waycross & Florida in Georgia and the East Florida in Florida) leaves the main line at Waycross, Ga., 92 miles from Savannah, and runs south by east to Jacksonville, Fla., 71 miles, making the line from Savannah to Jacksonville but 163 miles, against 261 miles by the circuitous route heretofore in use. Though built under separate organizations, the new line is owned and will be worked by the Savannah, Florida & Western Company.

Securities on the New York Stock Exchange.—The following securities have been placed on the lists at the New York Stock Exchange:

Gulf, Colorado & Santa Fe.—First-mortgage bonds, \$2,712,000.

Indiana, Bloomington & Western.—New stock of the consolidated company, \$8,500,000.

Sevier Valley.—The Salt Lake *Herald* says: "It is learned that the Sevier Valley Railroad Company has let contracts for grading 160 miles of the road running west from Grand River. Some change has been made in the route heretofore announced. From Grand River the line will run westerly, to a point on Price River, where a junction will be made with the branch running south through Castle Valley and Salina Cañon, while the main line will come through Pleasant Valley, and via Springville, Provo, etc., to Salt Lake. Nine parties have undertaken to grade 160 miles, the contracts ranging in length from eight to 40 miles. Work is to commence and the whole is to be completed ready for the ties by Dec. 1."

Shenandoah Valley.—This company has awarded contracts for 65 miles of the extension of 95 miles from Waynesboro, Va., to the Atlantic, Mississippi & Ohio Road. The parts covered by the new contracts are from Waynesboro, 40 miles south, and from near Roanoke station, 25 miles north. The contracts include sections of a few miles each, and the contractors, in the order of the size and importance of the sections let to them, are as follows, most of them being Virginia firms: Mills & Rowland, McMahon & Green, Griffith & Purcell, Fairfax & Diffendal, Reynolds & Angel, Newcomb & Godloe, Best & Murchler, Walton & Smith, Patrick Cogan and John Rawlings. The work is to be finished in October. It is quite possible that it will be all the construction necessary for the main line of the Shenandoah Valley road. Forty miles from Waynesboro the road can strike the Richmond & Allegheny's Lexington branch, and by a trackage arrangement with that company use its rails to its junction with the main line at Balcony Falls, and from there follow the main line of the Richmond & Allegheny up James River as far as it is in the same line, which will bring it near to Buchanan.

Somerset & Cambria.—At a recent meeting it was voted to increase the capital stock from \$100,000 to \$500,000, and to issue \$400,000 twenty-year, 6 per cent. bonds. These bonds will be taken by the Cambria Iron Company and others who have furnished rails and other materials for the road.

Southeastern Combination.—No additional particulars are reported in relation to the combination of southeastern lines. It is understood that the alliance will probably be completed by the lease of the Central Railroad, of Georgia, to the South Carolina Company, at a fixed rental. The South Carolina Company, although the smallest of the three, leases the Central and Georgia roads on account of obstacles in the charter of the other companies.

A motion is to be argued shortly in the United States Supreme Court for the close of the receivership of the South Carolina road.

South Pacific Coast.—California dispatches report that this road has been sold to the Atlantic & Pacific Company. It is of 3-ft. gauge and 75 miles long, from Alameda, Cal., to Santa Cruz, reaching San Francisco by ferry from Alameda. It is of value as giving the Atlantic & Pacific an approach to San Francisco already built through a difficult country, with valuable terminal property on San Francisco Bay at Alameda and Newark.

Later dispatches state that the President of the company contradicts the report and says that no sale has been made.

Southwestern Consolidation.—The following circular has been sent to International & Great Northern stockholders: "The owners of a majority of International & Great Northern Railroad stock have sold their stock to the International Railway Improvement Company and take in payment for each share International & Great Northern two shares Missouri, Kansas & Texas Railroad Company stock."

"The Improvement Company offer same terms to other holders of International & Great Northern Railroad Company stock who may deliver it at their office, 80 Broadway, before May 7."

A proposition is now before the stockholders of the St. Louis, Iron Mountain & Southern and the Texas & Pacific roads to consolidate those two companies. The basis of the agreement is said to be the acceptance of the shares of both companies at an equal value. It is believed that after both schemes are carried out there will be an amalgamation of the four roads.

Springfield Southern.—This company has given notice of intention to change its name to the Southern Ohio Railroad Company. It was originally the Springfield, Jackson & Pomeroy.

Texas & St. Louis.—A fight has been begun over the crossing of this road and the Missouri, Kansas & Texas extension at Waco, Tex., which promises to last some time.

Troy & Greenfield.—The Boston *Advertiser* says: "The total number of loaded cars passing through the tunnel during the month of March, east bound, was 5,149; same month last year, 4,292; increase this year, 857."

Work is being pushed under the new Manager, Mr. Locke, toward the completion of the double track all along the line of the state railroad, to keep up, so far as appropriations will allow, with the improvements effected on the connecting railroads. The rails and ties for the second track on the Troy & Greenfield Railroad have been engaged, and as soon as they are ready the work of double-tracking the state road will be commenced, and completed as rapidly as possible. The work at the central shaft will be finished this week, and the niches in the tunnel are fully one-third excavated. On the first of next month the new state road depot will be thrown open for the accommodation of travelers. The building is 165 feet long, 65 feet wide at the north end, and much less at the south end, to accommodate it to the diverging tracks of the two roads. It is estimated that it will cost some \$640,000 to complete the double-tracking of the entire road by the state. And in view of the great developments connecting roads are making with the object of increasing the business of the road, the double track will soon be imperatively demanded."

The Tunnel Committee of the Massachusetts Legislature has made a report recommending the immediate construction of the second track through the tunnel, a sufficient appropriation to be made this year.

Union Pacific.—A dispatch from Washington, April 23, says: "The United States government issued no bonds on that portion of the Union Pacific between Denver and Kansas City, and the United States Court of Claims has just decided that on the unsubsidized part of the road the government had no right to withhold from the charges for carrying the mails the 5 per cent. of net earnings which the law authorizes the Treasury Department to withhold from subsidized roads. Judgment for about \$40,000 is rendered for the three months named in the company's petition. It is estimated that this decision, which is also applicable to charges for the transportation of supplies, etc., will make a difference of upward of \$250,000 per annum in favor of the railway. The company has filed another petition, which will be tried in May. It represents, first, that up to and including Dec. 31, 1875, the claims of the company against the government for the transportation of the mails had been adjusted upon terms prescribed by the Post Office Department, which terms afforded a compensation to the company considerably less than the amount charged to and paid by private parties for the same kind of services at the same dates; and, second, that the railroad company from Dec. 31, 1875, to Sept. 30, 1877, rendered services to the United States in the carriage and transportation of the mails, and also in the transportation of agents of the United States, for which they have not yet received compensation. The petition fixes the aggregate amount due the railroad for such services from 1875 to 1877 at \$1,161,720.25. The petitioner maintains that one-half of the sum claimed to have been earned—namely, \$580,860.18—should be applied to the payment of the bonds issued by the government in aid of the construction of the railroad, and the rest should be paid over to the railroad company."